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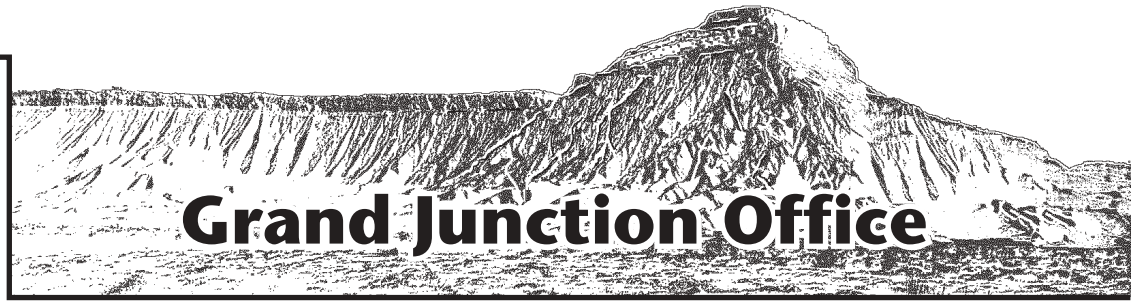
Pinellas Environmental Restoration Project

Sitewide Environmental Monitoring Quarterly Progress Report for the Young-Rainey STAR Center April Through June 2003

July 2003



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Pinellas Environmental Restoration Project
Sitewide Environmental Monitoring
Quarterly Progress Report
for the
Young - Rainey STAR Center

April through June 2003

July 2003

Prepared by
U.S. Department of Energy
Grand Junction Office
Grand Junction, Colorado

Work Performed Under DOE Contract Number DE−AC13−02GJ79491

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Acronyms and Abbreviations

AST	air stripper tower
bls	below land surface
°C	degrees Celsius
CMS	Corrective Measures Study
CMIP	Corrective Measures Implementation Plan
COPC	contaminant of potential concern
DCA	dichloroethane
DCE	dichloroethene
DOE	U.S. Department of Energy
EA	environmental assessment
EPA	U.S. Environmental Protection Agency
FDEP	Florida Department of Environmental Protection
FONSI	Finding of No Significant Impacts
ft	feet
ft/ft	feet per foot
gpm	gallons per minute
HSWA	Hazardous and Solid Waste Amendment
HRC	Hydrogen Release Compound®
ICM	interim corrective measures
IMW	Interim Measures Work (Plan)
IWNF	Industrial Wastewater Neutralization Facility
MCL	maximum contaminant level
MSL	mean sea level
µmhos/cm	micromhos per centimeter
µg/L	micrograms per liter
mg/L	milligrams per liter
mV	millivolt
NAPL	non-aqueous phase liquid
NEPA	National Environmental Policy Act
NTU	Nephelometric Turbidity Units
PCIC	Pinellas County Industrial Council
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RPD	relative percent difference
STAR Center	Young - Rainey Science, Technology, and Research Center
STL	Severn Trent Laboratories
SWMU	solid-waste management unit
TCE	trichloroethene
TCOPC	total contaminant of potential concern
VOCs	volatile organic compounds
WWNA	Wastewater Neutralization Area

1.0 Introduction

The Young - Rainey Science, Technology, and Research Center (STAR Center) is a former U.S. Department of Energy (DOE) facility constructed in the mid-1950s in Pinellas County, Florida. The 99-acre STAR Center is located in Largo, Florida, and lies in the northeast quarter of Section 13, Township 30 South, Range 15 East (Figure 1). The STAR Center, while owned by DOE, primarily manufactured neutron generators for nuclear weapons. Other products manufactured at the STAR Center have included radioisotopically powered thermoelectric generators, thermal batteries, specialty capacitors, crystal resonators, neutron detectors, lightning-arrestor connectors, and vacuum-switch tubes. In 1987, the U.S. Environmental Protection Agency (EPA) performed a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) at the site to gather information on potential releases of hazardous materials. In February of 1990, EPA issued a Hazardous and Solid Waste Amendment (HSWA) permit to DOE, enabling DOE to investigate and perform remediation activities in those areas contaminated by hazardous materials resulting from DOE operations. On March 17, 1995, DOE sold the facility to the Pinellas County Industrial Council (PCIC). The sales contract included clauses to ensure continued compliance with Federal, State, and local regulations while DOE remediates the site. On July 1, 1999, the PCIC was disestablished and ownership of the STAR Center changed to the Pinellas County government. In November 2000, the State of Florida received HSWA authorization from the EPA. The Florida Department of Environmental Protection (FDEP) issued a new HSWA Permit to DOE in January 2002.

Administration of DOE activities at the facility is the responsibility of the DOE Idaho Operations Office. Responsibility for environmental restoration activities, conducted under the EPA RCRA Corrective Action Program of 1984, was transferred from DOE's Pinellas Area Office to DOE's Grand Junction Office in October 1997. S.M. Stoller Corporation (Stoller), a prime contractor to the DOE Grand Junction Office, provides technical support to DOE for remediation and closure of all active solid-waste management units (SWMUs) on site.

The EPA RFA Report and the HSWA permit identified 15 sites at the former DOE facility that may have experienced environmental contamination as a result of past activities. Upon completion of the RCRA Facility Investigation, 11 of the 15 SWMUs were recommended by DOE and approved by EPA Region IV and the FDEP for no further action (DOE 1994). A twelfth site, the Former Pistol Range Site, was remediated in 1993 and recommended by DOE and approved by EPA Region IV and the FDEP for no further action.

Two additional SWMUs, the West Fenceline Site and the Wastewater Neutralization Area/ Building 200 (WWNA/Building 200), were identified after the HSWA permit was issued, bringing the total to 17 SWMUs that have been identified and investigated at the STAR Center. Remediation of the West Fenceline Site was completed in 1997 and DOE recommended, and EPA Region IV and FDEP approved, no further action. A Corrective Measures Study (CMS)/Corrective Measures Implementation Plan (CMIP) was prepared and submitted in 1997 to EPA Region IV and FDEP to address the contamination at the WWNA/Building 200 Area.

Therefore, there are currently four sites that have contamination in the surficial aquifer ground water at levels in excess of protective standards. These four SWMUs, the Old Drum Storage Site (PIN06), the Industrial Drain Leaks-Building 100 Area (PIN12), the Northeast Site (PIN15), and the WWNA/Building 200 Area (PIN18), are undergoing remediation activities. Two SWMUs, PIN06 and PIN12, are currently being remediated together because of their similar ground water

contamination and proximity. These two SWMUs are collectively known as the Building 100 Area. Figure 2 depicts the location of the four SWMUs.

Additional background information relative to each SWMU is briefly described below. This document also serves as the quarterly progress report for each of these four SWMUs. The results of monitoring activities, a summary of the treatment system performance, and a summary of ongoing and projected work are provided in this report.

1.1 Building 100 Area

The Building 100 Area (PIN06 and PIN12) is located in the southeast portion of the STAR Center. The Old Drum Storage Site is the former location of a concrete storage pad equipped with a drain and containment system used to store hazardous waste including dichloromethane (also known as methylene chloride), ignitable liquids, arsenic, and calcium chromate solids (DOE 1987a). Empty drums containing residual waste solvents were also stored in this area (DOE 1987b). The concrete pad was located near the northwest corner of Building 100. The pad was removed in October 1983 in accordance with an FDEP closure permit (DOE 1987a), and a closure report was submitted to the FDEP in August 1986 (DOE 1986). The decommissioning of the pad and the cessation of drum storage effectively removed the potential for a future contaminant source at PIN06.

Building 100 is the largest building at the STAR Center and covers approximately 11 acres. In the past, offices, laboratories, and production facilities for the DOE were housed in the building. SWMU PIN12 consists of the liquid waste drainage system serving Building 100. Four individual drainage systems (sanitary, chemical, health physics, and storm water) were present within the building. In 1989, all four drainage systems were investigated, including verifying the system routing and the condition of underground and above-ground piping and ancillary equipment (EMC 1989). As a result of this investigation, the health physics and chemical drainage systems were flushed, grouted, and abandoned (DOE 1997). Some of the chemical drain lines were replaced by an above-ground system currently used by tenants of the building.

A CMS and CMIP were completed and approved for the Building 100 Area because volatile organic compounds (VOCs) concentrations measured in ground water at the Old Drum Storage Site (PIN06) and one monitoring well located at the northwest corner of Building 100 (PIN12) exceeded the Safe Drinking Water Act and FDEP maximum contaminant levels (MCLs). Subsequent investigations revealed elevated VOCs concentrations under Building 100 and downgradient to the southeast as well. On August 15, 2000, EPA approved the Building 100 CMIP Addendum. FDEP approved this same document on November 15, 1999.

Commencing in May 2001, DOE began an analysis of the potential remediation strategies for the three Building 100 Area tasks: plume control, source treatment, and dissolved phase treatment. The *Building 100 Area Remediation Technology Screening Report* (DOE 2001) was prepared and assembled a list of remediation technologies, categorized them into the remediation tasks, and conducted an initial screening of the technologies. This initial screening eliminated the technologies that obviously would not work and recommended technologies that should be retained for detailed evaluation at a later time. The final technology for each task will be identified at a later date.

The *Building 100 Area Plume Control Technology Selection Report*, prepared in February 2002, conducted a detailed evaluation of five plume control technologies and recommended a technology that should be implemented for plume control at the Building 100 Area. Based on this evaluation, enhanced bioremediation was recommended to control the contaminant plume.

In situ enhanced bioremediation to control the plume of dissolved contaminants at the Building 100 Area began as a pilot study on March 11, 2003. Hydrogen Release Compound® (HRC) was injected around three ground water monitoring wells through nine injection points surrounding each monitoring well from March 11 through March 14. Ground water samples will be collected from each of the three monitoring wells at approximately 2-month intervals through March 2004 to track the progress of HRC at remediating site contaminants in the subsurface. HRC was selected because it is an effective technology for optimizing degradation rates of chlorinated hydrocarbons dissolved in ground water. The continuous hydrogen source provided by the HRC can reduce the concentration of dissolved phase chlorinated hydrocarbons by greatly enhancing the reductive declorination process that occurs naturally at the Building 100 Area.

1.2 Northeast Site

In the late 1960s, before construction of the East Pond, drums of waste and construction debris were disposed of in the swampy area of the Northeast Site. The East Pond was excavated in 1968 as a borrow pit. In 1986, an expansion of the East Pond was initiated to create additional storm-water retention capacity. Excavation activities ceased when contamination was detected directly west of the East Pond. EPA identified the Northeast Site as a SWMU. An Interim Corrective Measures (ICM) Study was developed and submitted to EPA and approval of this document was received in October 1991. An interim ground water recovery system for the Northeast Site was installed, and operation commenced in January 1992. The implementation of this ICM system at this site is consistent with the regulatory goals of the EPA's RCRA Corrective Actions (Subpart S).

The ICM system, as initially installed, consisted of four recovery wells equipped with pneumatic recovery pumps, a holding tank, centrifugal transfer pumps, and approximately 2,500 feet (ft) of transfer and secondary containment piping. During 1993, DOE proposed a reconfigured system for the site consisting of four shallow and three deep recovery wells. After EPA approved the system upgrade, the system was reconfigured and became operational on March 1, 1994.

Between August and October 1995, after EPA and FDEP approval, a portion of the Northeast Site was excavated to remove debris and other materials that could inhibit future corrective measures. Location of the areas of excavation was based primarily on the results of a geophysical survey and knowledge of existing utility locations. Detailed descriptions of the debris removal activities were submitted to EPA and FDEP as part of the *Northeast Site Interim Measures Quarterly Progress Report* (DOE 1996).

In 1996, DOE submitted a CMIP to EPA Region IV and FDEP. This plan was approved by both regulatory agencies in 1997. As part of the Northeast Site CMS and CMIP, a pump-and-treat system in conjunction with a subsurface hydrogeologic barrier wall to prevent migration of the contaminant plume was identified as the best available technology. A pretreatment system for iron removal, an air stripper unit, and a tank for holding treated ground water before discharge to the Pinellas County Publicly Owned Treatment Works were recommended. The treatment system was constructed in early 1997 and became operational by July 1997 with seven Northeast

Site recovery wells and two Building 100 recovery wells pumping to the system influent tank. Subsequently several additional recovery wells were installed, and some of the old recovery wells were abandoned.

During 1997, anaerobic bioremediation and rotary steam stripping pilot tests were conducted in the northern and southern portions of the Northeast Site, respectively. These tests were designed by an Innovative Treatment Remediation Demonstration group of regulatory and industry members to provide remedial options at the STAR Center. At the conclusion of the field tests in July 1997, pump-and-treat technology resumed at the Northeast Site.

An *Interim Measures Work* (IMW) *Plan for Remediation of Non-Aqueous Phase Liquids at the Northeast Site* was submitted to FDEP in late November 2001. The purpose of this document was to present the plan for the interim measure to remediate non-aqueous phase liquids (NAPLs) at the Northeast Site. An ICM is warranted because it supports the long-term corrective action to remediate the dissolved phase contamination in the surficial aquifer to FDEP drinking water MCLs. Without this measure, NAPLs will continue to act as a source of dissolved contamination, resulting in contaminant concentrations in ground water well above the MCLs. FDEP approved this document on January 10, 2002.

Concurrent with the preparation of the IMW Plan, an Environmental Checklist recommending a Categorical Exclusion was prepared and approved by DOE on December 19, 2001. The Categorical Exclusion pathway was approved based upon the fact that the NAPL remediation of Area A is a small-scale, short-term cleanup action and the siting, construction, and operation of treatment facilities are temporary and pilot-scale in size.

A National Environmental Policy Act (NEPA) Action Review was conducted for the interim measure source removal action at Area B in October of 2002. A summary of the review concluded that Area B remediation would impact an area of approximately 38,000 square ft. The footprint of the above ground treatment system would be about 80 ft by 80 ft, and an estimated 84,000 gallons per day of ground water would be processed over a 24-week period of operation. The proposed interim measure, although not specifically identified in the 1995 *Environmental Assessment of Corrective Action at the Northeast Site* (EA), was determined to be within the scope of the proposed actions. The remedial activity would occur within the same physical boundaries and address the same contaminants identified in the EA, but in a more concentrated form. Because the EA provided for "design modifications to reflect technological advances or site-specific conditions," it was determined that the NAPL remediation of Area B was within the scope of the existing EA. However, this flexibility was not mentioned in the Finding of No Significant Impacts (FONSI) document signed in May 1995. Therefore, it was determined that the appropriate action under NEPA would require an amendment to the FONSI to include the broader scope of activities from the EA and any additional impacts from the NAPL removal action. The FONSI was amended, reviewed by the DOE-Idaho NEPA Planning Board, and approved by the DOE Grand Junction Office NEPA Compliance Officer on February 24, 2003.

Construction of the NAPL Area A treatment system began in late May 2002, and system startup occurred on September 26, 2002. NAPL treatment was partially complete on January 31, 2003, and totally finished on February 28, 2003. The first post-treatment sampling event began on March 24, 2003, and the second post-treatment sampling event commenced May 13, 2003.

1.3 WWNA/Building 200 Area

The WWNA/Building 200 Area includes the active Industrial Wastewater Neutralization Facility (IWNF), the area around Building 200, and the area south of the neutralization facility. The IWNF refers to the physical treatment facility that currently receives sanitary and industrial wastewater and has been in operation since 1957.

A CMS Report and CMIP were completed in 1997 for this SWMU because vinyl chloride, trichloroethene (TCE), and arsenic were detected in surficial aquifer ground water at concentrations above Federal and State MCLs. The recommended remediation alternative for the WWNA/Building 200 Area was ground water recovery with the Building 100 Area wells and an additional recovery well located in the WWNA. The CMIP recommended that recovered water from the additional well be discharged directly to the IWNF and that the recovery well in the WWNA/Building 200 Area will withdraw surficial aquifer ground water directly from the arsenic plume and thereby reduce the contaminant mass and prevent contaminant migration.

FDEP response to the CMS/CMIP concerning arsenic soil contamination in the upper 2 ft suggested that a treatment technology, air sparging, was eliminated too early. DOE then proposed a multi-phased Interim Action that included operating the recovery well for 6 months, then pulsing the system, as well as performing geochemical analyses and leaching studies of the site. On January 21, 1999, FDEP approved the proposed interim remedial action.

Additionally, EPA Region IV also approved the interim remedial action and concurred with the FDEP's position regarding the arsenic contamination. EPA also requested an addendum or modification to the CMIP that addresses DOE's final selection of the remediation technology and a timeline for the completion of these activities.

In early June 1999, the WWNA recovery well commenced operation. All arsenic concentrations from the WWNA recovery well, PIN18−RW01, were below the STAR Center's daily maximum discharge standard for arsenic in wastewater of 0.20 milligrams per liter (mg/L) until shutdown.

Additional details concerning the impacts of ground water extraction are reported in the WWNA/Building 200 Area CMIP Addendum (DOE 2000b). Modifications to the recovery of ground water were proposed based on data collected through November 1999 and consisted of the installation of two new recovery wells screened at shallow intervals. The CMIP Addendum was submitted to the regulators and approved by FDEP and EPA. A Statement of Basis (DOE 2000a) was issued by DOE in late September 2000. This document provides a summary of environmental investigations and proposed cleanup alternatives for the WWNA/Building 200 Area. Current activities at the WWNA include ground water extraction from three recovery wells, PIN18−RW02, −RW03, and −RW0501, that discharge to the STAR Center's wastewater system. Table 1 depicts the results of the analysis of arsenic in ground water that is being recovered from these three wells.

1.4 Site Update

This report provides a more detailed evaluation of the site over the last year. Section 4.0, "Data Interpretation," discusses remediation progress and plume movement. Time versus concentration plots and plume maps are provided to assist in interpretation of the ground water data.

In situ thermal remediation operations at the Northeast Site NAPL Area A began on September 26, 2002, and ceased on February 28, 2003. The initial post-treatment soil and ground water sampling event commenced in late March and continued into mid-April 2003. The second post-treatment sampling event occurred in mid-May. Results of the two soil and ground water sampling events, along with other significant events associated with NAPL remediation, are presented in the *Northeast Site Non-Aqueous Phase Liquids Interim Measures Progress Report April through June 2003* (DOE 2003).

Safety and Ecology, Inc., the vendor that is implementing the in situ enhanced bioremediation to control the plume of dissolved contaminants at the Building 100 Area, conducted ground water sampling activities in April and June at three ground water monitoring wells to track contaminant concentrations and other ground water parameters. Ground water sampling will occur approximately every 2 months continuing through March 2004. The April sampling event occurred approximately 3 weeks after completion of HRC injection. As a result, significant changes in contaminant concentrations and geochemical parameters were not expected nor were they reported. The results from the June event are not expected to be received until July and will be discussed in the next quarterly report.

At the WWNA, a ground water monitoring well containing the highest arsenic concentrations (PIN18−0501) was converted into a recovery well (PIN18−RW0501) in order to aid in the removal of arsenic contaminated ground water.

1.5 Quarterly Site Activities

Stoller personnel conducted the following tasks at the STAR Center to fulfill the requirements of the scope of work for quarterly sampling:

- Obtained water-level measurements from all accessible monitoring wells, recovery wells, and ponds on April 4, 2003.

- Conducted the annual sampling event in April and May 2003. Most wells were sampled in April, but due to access difficulties 18 wells in locked areas of Building 100 were sampled in May. The sampling event included collecting water samples from 166 monitoring and recovery wells. VOC samples were collected at all wells. Sampling for arsenic was conducted at 153 wells. Chromium sampling was conducted at 30 wells, and lead was sampled at 17 wells.

- Reported the results of quarterly sampling events (this document).

- Discussed remediation progress and plume movement. Time versus concentration plots and plume maps are provided to assist in interpretation of the ground water data (Section 4.0).

2.0 Water-Level Elevations

2.1 Work Conducted and Methods

Within an 8-hour period on April 4, 2003, depth-to-water measurements were taken at all accessible monitoring wells and extraction wells at the STAR Center. The water levels were

measured with an electronic water-level indicator with the exception of some of the ponds, which are measured with gauging stations. The water level at the west pond was not taken because the gauge was out of commission. Ground water and surface-water elevations are listed in Table 2.

2.2 Ground Water Flow

Ground water and surface-water elevations were used to construct sitewide ground water contour maps of the shallow and deep surficial aquifers (Plates 1 and 2, respectively). Individual contour maps were also constructed for the shallow and deep surficial aquifers at the Northeast Site and the Building 100 Area (Figure 3 through Figure 6, respectively). All data points were honored when constructing the interpretive contours.

The water levels throughout the STAR Center indicate that the water table is highest in the north-central parts of the site (Plates 1 and 2). As ground water flows from this recharge area, it essentially disperses to the west, south, and east. These flow patterns are similar for both the shallow and deep surficial aquifers, and are consistent with previously observed flow patterns.

Along the northern boundary of the Northeast Site, the contours near the slurry wall indicate that the wall continues to be a significant barrier to ground water flow. As seen on Figure 4, there is a differential of about 1.5 ft between the downgradient and upgradient sides of the wall as measured in monitoring wells PIN15−M24D and −M33D. This differential is slightly less than the historical range of about 2 to 5 ft. This differential is less than that observed in January 2003 because ground water withdrawals have ceased in the NAPL treatment area. The flow patterns suggest that only a minimal amount of ground water recharge to the deep surficial aquifer is derived from the pond. Otherwise, the differential between these two wells would be smaller and the ground water gradient would be steeper near the pond, indicating recharge to the ground water system. Water-table elevations immediately around the East Pond, however, indicate that the pond was slightly recharging the shallow surficial aquifer in April 2003 (Figure 3).

In the shallow surficial aquifer just south of the Northeast Site, the hydraulic gradient was approximately 0.011 feet per foot (ft/ft). Using Darcy's Law, along with approximations of 1 ft/day for hydraulic conductivity and 0.3 for effective porosity, ground water in the southern part of the site is estimated to move about 14 ft/year toward the north (i.e., toward the on-site extraction wells) under conditions influenced by pumping. This velocity is similar to those estimated in July and October 2002 (17 and 22 ft/year, respectively). In the deep surficial aquifer, the radius of influence from the recovery wells is interpreted to extend roughly 60 ft south of the south fence (Figure 4).

In the south-central part of the STAR Center, surficial aquifer flow is influenced by ground water withdrawals from recovery wells PIN12−RW01 and −RW02 in the northwest corner of Building 100 (Figures 5 and 6), and withdrawals from recovery wells PIN18−RW02 and −RW03 at the WWNA (Figure 5). The shallow water table beneath Building 100 was relatively flat in April 2002, but generally flowed to the southeast in January 2003. In April 2003, ground water flowed to the southeast under a very slight gradient. The hydraulic gradient beyond the influence of pumping at the Building 100 Area was about 0.001 ft/ft. Using the approximations mentioned above, ground water flow velocity in these areas is estimated to be less than 2 ft/year. Shallow ground water at the WWNA flows to the southeast, except where affected by recovery well withdrawals.

Water-level elevations in the three wells screened in the upper part of the Floridan aquifer are presented in Table 3. The elevations in these wells indicate that the potentiometric surface of the Floridan aquifer at the site has a slight gradient to the southwest.

A downward vertical hydraulic differential of approximately 6.7 ft existed between the surficial aquifer wells and Floridan aquifer wells at the Northeast Site. Table 4 illustrates the vertical hydraulic differential. This differential is consistent with the historical range of 5 to 9 ft.

Surface-water elevations were recorded from the East, South, and Southwest Ponds at the site and are presented in Table 5. The ponds are hydraulically connected to the shallow surficial aquifer system. The South and Southwest Ponds elevations have always been essentially the same. A new staff gauge is scheduled to be installed in the West Pond in July 2003.

3.0 Ground Water Sampling and Analytical Results

3.1 Work Performed

During annual sampling in April and May 2003, ground water samples were collected from 166 monitoring and recovery wells. All samples were analyzed for VOCs using EPA Method 8021. Arsenic was analyzed in 153 samples, 30 samples were analyzed for chromium, and 17 samples were analyzed for lead using EPA Method 6010. Laboratory reports are provided in Appendix A.

During the period of April 1 to June 30, 2003, the remediation system influent and effluent at the Northeast Site, as well as selected recovery wells at the Northeast Site, were also sampled. Analytical results for remediation system VOCs, iron, and hardness (as $CaCO_3$) sampling are provided in Appendix B. Laboratory reports for the WWNA analyses are provided in Appendix C.

All samples were collected in accordance with the Stoller *Sampling Procedures for the Young - Rainey STAR Center* (DOE 2002), using FDEP procedures. All samples collected were submitted to Severn Trent Laboratories (STL) for analysis. STL is accredited by the Florida Department of Health in accordance with the National Environmental Laboratory Accreditation Conference, certification number E84282. The majority of monitoring wells were micropurged using a dedicated bladder pump, and sampling was performed when the field measurements stabililized. The remaining wells were conventionally purged with a peristaltic pump or a 2-inch diameter stainless-steel submersible pump; purging was considered complete once field measurements had stabilized. Extraction wells were sampled using their associated flowlines with dedicated sampling ports. Table 6 lists field measurements of pH, specific conductance, dissolved oxygen, oxidation-reduction potential, turbidity, and temperature recorded at the time the samples were collected. Measurements were made with a flow cell and a multiparameter instrument.

3.2 Analytical Results

3.2.1 Northeast Site (PIN15)

Concentrations of contaminants of potential concern (COPC) in samples collected from wells at the Northeast Site (PIN15) are included in Table 7, which shows the previous four quarters of data for comparison purposes. Figure 7 shows the total COPCs (TCOPCs) concentrations.

No COPCs were detected in the 34 monitoring wells listed below:

PIN15–0506	PIN15–0520	PIN15–0571	PIN15–M14S	PIN15–M30S
PIN15–0507	PIN15–0523	PIN15–0572	PIN15–M16D	PIN15–M31D
PIN15–0510	PIN15–0530	PIN15–M03D	PIN15–M16S	PIN15–M31S
PIN15–0513	PIN15–0534	PIN15–M03S	PIN15–M17S	PIN15–M32D
PIN15–0515	PIN15–0559	PIN15–M12D	PIN15–M24D	PIN15–M32S
PIN15–0516	PIN15–0568	PIN15–M12S	PIN15–M27S	PIN15–M33D
PIN15–0518	PIN15–0570	PIN15–M14D	PIN15–M29D	

The 24 monitoring and recovery wells listed below contained detectable COPCs:

PIN15–0514	PIN15–0538	PIN15–M29S	PIN15–M37D	PIN15–RW14
PIN15–0533	PIN15–0557	PIN15–M30D	PIN15–RW03	PIN15–RW15
PIN15–0535	PIN15–0569	PIN15–M34D	PIN15–RW06	PIN15–RW16
PIN15–0536	PIN15–M17D	PIN15–M35D	PIN15–RW12	PIN15–RW17
PIN15–0537	PIN15–M27D	PIN15–M36D	PIN15–RW13	

TCOPCs concentrations ranged from below detection limit to 1,047,800 micrograms per liter (µg/L). Well PIN15−M35D contained the highest TCOPC value, and the COPC compound detected at the highest concentration was methylene chloride at 910,000 µg/L.

Concentrations of arsenic in ground water samples collected from 48 monitoring wells at the Northeast Site are reported in Table 8. Arsenic was detected at four monitoring wells. PIN15−M14S had the highest concentration at 0.041 mg/L.

3.2.2 Building 100 Area (PIN06, PIN09, PIN10, PIN12, and PIN21)

TCOPCs concentrations in samples collected from wells sampled at the Building 100 Area are included in Table 9, which also shows the previous four quarters of data for comparison purposes. Figure 8 shows the TCOPCs concentrations.

No COPCs were detected in the 35 monitoring wells listed below:

PIN06–0500	PIN12–0512	PIN12–0527	PIN12–S60D	PIN12–S72D
PIN06–0501	PIN12–0515	PIN12–0528	PIN12–S68B	PIN12–S73B
PIN09–0500	PIN12–0516	PIN12–S31B	PIN12–S69B	PIN21–0500
PIN12–0508	PIN12–0517	PIN12–S36B	PIN12–S69C	PIN21–0502
PIN12–0509	PIN12–0518	PIN12–S59B	PIN12–S69D	PIN21–0503
PIN12–0510	PIN12–0522	PIN12–S59D	PIN12–S72B	PIN21–0504
PIN12–0511	PIN12–0523	PIN12–S60C	PIN12–S72C	PIN21–0505

Samples from the 44 monitoring wells listed below contained COPCs at detectable levels. They are:

PIN10–0500	PIN12–RW02	PIN12–S55C	PIN12–S60B	PIN12–S71B
PIN12–0513	PIN12–S29C	PIN12–S55D	PIN12–S67B	PIN12–S71C
PIN12–0514	PIN12–S30B	PIN12–S56B	PIN12–S67C	PIN12–S71D
PIN12–0520	PIN12–S32B	PIN12–S56C	PIN12–S67D	PIN12–S73C
PIN12–0521	PIN12–S33C	PIN12–S56D	PIN12–S68C	PIN12–S73D
PIN12–0524	PIN12–S35B	PIN12–S57B	PIN12–S68D	PIN12–TE03
PIN12–0525	PIN12–S37B	PIN12–S57C	PIN12–S70B	PIN21–0501
PIN12–0526	PIN12–S54D	PIN12–S57D	PIN12–S70C	PIN21–0512
PIN12–RW01	PIN12–S55B	PIN12–S59C	PIN12–S70D	

TCOPCs concentrations ranged from below detection limits to 190,000 µg/L. The COPC compound detected at the highest concentration was cis-1,2-dichloroethene (DCE) at 110,000 µg/L in PIN12−S35B.

Concentrations of arsenic from ground water samples collected in 76 monitoring wells at the Building 100 Area are reported in Table 8 and show that arsenic was detected at 12 monitoring wells listed below:

PIN06–0500	PIN12–0525	PIN12–S33C	PIN12–S68B
PIN09–0500	PIN12–S31B	PIN12–S35B	PIN12–S73B
PIN10–0500	PIN12–S32B	PIN12–S37B	PIN12–S73D

Monitoring well PIN12−S68B contained the highest arsenic value of 0.065 mg/L.

3.2.3 Wastewater Neutralization Area (PIN18)

The volatile COPC at the WWNA is vinyl chloride. No vinyl chloride was detected in the 27 monitoring wells and recovery wells listed below.

PIN18–0500	PIN18–0506	PIN18–0512	PIN18–0518	PIN18–0526
PIN18–0501	PIN18–0507	PIN18–0513	PIN18–0520	PIN18–RW02
PIN18–0502	PIN18–0508	PIN18–0514	PIN18–0521	PIN18–RW03
PIN18–0503	PIN18–0509	PIN18–0515	PIN18–0522	
PIN18–0504	PIN18–0510	PIN18–0516	PIN18–0524	
PIN18–0505	PIN18–0511	PIN18–0517	PIN18–0525	

Samples from the two monitoring wells listed below contained vinyl chloride at detectable levels.

PIN18−0519	PIN18−0523

Vinyl chloride concentrations ranged from below detection limits to 5.6 µg/L in PIN18−0523.

Arsenic samples were collected from 29 wells. Concentrations of COPCs from quarterly sampling are listed in Table 10 and TCOPCs (arsenic and vinyl chloride) are shown in Figure 9. The highest concentration of arsenic detected was 300 µg/L in PIN18−0501 (note that the units for arsenic have changed from mg/L to µg/L so that TCOPCs for this area could be calculated using consistent units).

Concentrations of chromium from ground water samples collected in 27 monitoring wells at the WWNA are reported in Table 8 and show that chromium was detected at two monitoring wells, PIN18−0514 and –0526, at concentrations of 0.011 and 0.015 mg/L, respectively.

3.3 Quality Assurance/Quality Control

Stoller checked the analytical results from STL for quality assurance/quality control (QA/QC) through duplicate samples and trip blanks. Detected analytes for VOCs, arsenic, and chromium analyses for each duplicate sample are listed in Table 11. The duplicate sample results were compared and the relative percent differences (RPDs) between the results were calculated. There were 10 duplicates analyzed for VOCs during quarterly sampling, nine duplicates analyzed for arsenic, and three duplicates analyzed for chromium. There were also three VOC duplicates analyzed with treatment system samples during the quarter.

A total of 477 duplicate analyses for individual analytes were performed. The duplicate pair for well PIN12−S35B did not meet the guidance criterion that the RPDs results should be within the range of ±30 percent when the concentration is greater than 5 times the detection limit for trichloroethene. A more serious problem occurred with a duplicate pair for PIN15−M37D. After examining the data for PIN15−M37D it was evident that the differences between the sample and the duplicate were significant enough to indicate that a sample switch may have occurred. Cis-1,2-DCE and vinyl chloride differed by an order of magnitude and TCE was also significantly different. A trip blank documented concurrently with the duplicate also showed significant contamination, including 32 µg/L of vinyl chloride as well as 2.3 µg/L bromomethane. The sampling team was interviewed about possible sample problems and all the data collected by that sampling team for that day were evaluated. However, the cause of the problem was not determined. Because the quality of this data is not acceptable, the data from the duplicate, the original and the trip blank samples will be “R” qualified in the database to flag it as unacceptable. All analytic results from these three samples will be qualified as unusable. All analytical results taken from other locations sampled by that team on that day fall within the range of values encountered during previous sampling and are considered to be acceptable. All other data passed QA/QC criteria at a Class A level, indicating that all data may be used for quantitative and qualitative purposes.

Duplicate samples should be collected at a frequency of one duplicate for every 20 or fewer samples. There were 166 ground water samples analyzed for VOCs, with 10 duplicate VOC samples collected. There were 153 ground water samples analyzed for arsenic, with nine duplicate samples. There were 30 ground water samples analyzed for chromium, with three duplicate sample collected. There were 17 ground water samples collected for lead with one duplicate sample. The duplicate requirements for all analytes were met.

During the quarterly sampling event, 13 trip blanks and two equipment blanks were submitted for analysis. An additional three trip blanks were collected with treatment system samples during the quarter. As discussed above, one trip blank showed levels of contamination that indicated it was probably an environmental sample that was inadvertently labeled as a trip blank. Analytes in all the other trip blanks and the equipment blank were below the reporting limit. Estimated levels of methylene chloride that were above the instrument detection limit but below the reporting limit were found in six samples and in some cases were also found in the laboratory method blank. The maximum estimated quantity of methylene chloride found was 1.3 µg/L. Samples

where methylene chloride was also found in the method blank were qualified with a "B." Estimated quantities of cis-1,2-DCE, o-xylene, and propane were found in two trip blanks and an estimated quantity of toluene was found in one trip blank.

4.0 Data Interpretation

This data interpretation section is included in each April to June quarterly report to aid in evaluation of remediation progress and plume movement. Time versus concentration plots and plume maps were generated to aid the interpretation.

4.1 Contaminant Concentration Trends

Monitoring wells PIN15–0537 and –0558 were chosen to evaluate plume movement and plume control at the Northeast Site. However, well 0558 was abandoned in 2002, so another well will be chosen from the five new wells installed south of the Northeast Site in February 2003 once enough data are collected to show trends (currently, these new wells have been sampled only once). The concentration with time plots for cis-1,2-DCE and vinyl chloride in well 0537 are depicted in Figure 10. Both cis-1,2-DCE and vinyl chloride showed increasing concentrations in 1999 and 2000, but have since shown slightly decreasing or stable concentration trends. It is likely that this decreasing or stable trend is due to the effect of recovery wells RW16 and RW17, which began operation in January 2001. The ground water recovery action of these recovery wells captures ground water containing higher concentrations before the water moves downgradient.

At the WWNA, three wells were chosen to depict remediation progress. Wells PIN18−0500, −0522, and −0525 were chosen because they are shallow wells containing high arsenic concentrations (Figure 11). The arsenic concentration in well 0500 appears to have stabilized at approximately 0.1 mg/L over the last 2 years, potentially indicating a continuing source of arsenic. Wells 0522 and 0525 show short term increasing and decreasing trends with arsenic concentrations typically less than 0.1 mg/L.

Monitoring wells PIN21–0512 and PIN12–S66C/S73C were chosen to depict plume migration at the Building 100 Area because they are the monitoring wells nearest the property boundaries. Well S66C was abandoned in March 2002 and replaced with well S73C installed a few feet away. Well S73C was sampled for the first time in April 2002. Well 0512 lies along the southern boundary and wells S66C/S73C lie along the eastern boundary of the STAR Center.

Vinyl chloride was chosen as the compound most indicative of plume movement, and Figure 12 depicts vinyl chloride concentrations over time in wells 0512 and S66C/S73C. Well 0512 shows a decreasing vinyl chloride concentration trend to near the 1 µg/L MCL over the last year. This trend could be due to natural biodegradation of vinyl chloride, but more likely is due to dilution from mixing of clean water with contaminated water near the leading edge of the plume. Well S66C has shown a relatively consistent vinyl chloride concentration over a few years, and, while slightly higher in concentration, well S73C has also shown consistent vinyl chloride concentrations. This difference in vinyl chloride concentrations in the two wells may be a function of the different locations of the two wells, even though they are only a few feet apart.

4.2 Plume Maps

For each SWMU, plume maps were generated for the TCOPCs as well as selected contaminants. The compound-specific MCL has been utilized to draw the inferred plume boundary for each contaminant (i.e., concentrations below the MCL were not included in the plume area). The TCOPCs plume area includes any detected concentration. The outline of the plume from April 2002 is also shown on the maps for comparison.

Plume maps for the Northeast Site have been generated for TCOPCs (Figure 7), vinyl chloride (Figure 13), cis-1,2-DCE (Figure 14), TCE (Figure 15), methylene chloride (Figure 16), toluene (Figure 17), and benzene (Figure 18).

A factor that must be considered when observing Northeast Site plume maps is the abandonment of all the monitoring and recovery wells in and near the northern NAPL area prior to the April 2002 sampling event. These wells were abandoned to ensure that they would not interfere with the operation of the NAPL remediation activities. However, these wells also defined the plume in this area. Therefore, on the plume maps, it appears that many of the individual contaminant plumes no longer extend to the north, when in fact they do extend to the north. Data from post-NAPL remediation sampling of wells recently installed to confirm the success of NAPL remediation are reported in the *Northeast Site Non-Aqueous Phase Liquids Interim Measures Progress Report* (DOE 2003). Another factor that must be considered when comparing this year's plume boundaries with last year's plume boundaries is the change from reporting total VOCs to TCOPCs. Due to this change, last year's total VOCs plume boundaries are not shown on this year's maps showing the TCOPCs plume.

At the Northeast Site, this year's TCE plume is slightly smaller than last year's plume, due mainly to the lack of detection of TCE in well 0537. This lack of detection of TCE likely is a result of the high reporting limit (250 µg/L) in April 2003 relative to the 21 µg/L value measured in April 2002. Therefore, it is possible that the TCE plume is the same size as it was last year. Recently, DOE has taken steps with the analytical laboratory to improve the issue with elevated reporting limits by reporting multiple dilutions on samples. The cis-1,2-DCE plume is similar in size to last year's plume. The vinyl chloride and methylene chloride plumes have slightly different shapes this year relative to last year, but this is due to wells that have been abandoned and new wells that were installed. The toluene plume is slightly smaller this year due to significant decreases in concentration in wells M36D and M37D. The exact cause of these significant decreases is unknown, but could be due to pumping of recovery wells in the area, or could simply be due to the presence of these wells near the NAPL area.

Figure 19 depicts the arsenic plume at the WWNA. This plume is the same size as in 2002.

Plume maps for the Building 100 Area have been generated for TCOPCs (Figure 8), vinyl chloride (Figure 20), cis-1,2-DCE (Figure 21), and TCE (Figure 22). The TCE plume has gotten slightly larger due to the detection of TCE at wells S56B, C, and D. TCE has been detected very infrequently in these wells in the past (and at lower concentrations), so it is possible that the appearance of TCE could signal minor plume movement under the building. However, future data should be used to confirm this trend before any conclusions are drawn. The cis-1,2-DCE plume appears to have moved slightly to the southeast (in the direction of ground water flow) relative to last year, as evidenced by the appearance of concentrations above the 70 µg/L MCL in wells S71C and S68D. The vinyl chloride plume is similar in size to last year's plume except for

an expansion to include wells S56B, C, and D. vinyl chloride has been detected in these wells at elevated concentrations in the past.

4.3 Geochemical Parameters

Geochemical parameters measured in all wells at the STAR Center during April 2002 are summarized in Table 6. Conditions across the STAR Center generally are reducing as evidenced by the low values of dissolved oxygen and oxygen reduction potential.

5.0 Treatment System and Recovery Well Performance

5.1 Northeast Site and Building 100

The Northeast Site ground water treatment system was operational from April 1 through June 30, 2003, with the exception of two minor Building 100 power outages. During the weekends of April 26, 27, and May 24 through 26, the Building 100 recovery wells experienced power failures that shutdown the submersible electric pumps. In both cases, the pumps were restarted after returning from the weekend.

Table 12 provides a summary of analytical results for samples collected at the Northeast Site treatment system during this quarter. Treatment system effluent samples were analyzed for VOCs and the effluent discharge volume was recorded to comply with the Pinellas County wastewater permit. In the effluent samples, all volatile organic aromatic concentrations were under the Pinellas County regulatory limit of 50 µg/L.

FeRemede® continues to be utilized to effectively control the deposition of iron and hardness salts. The application of sodium hypochlorite as a microbiocide has continued to successfully control biological growth in the air stripper tower (AST).

From April 1 through June 30, 2003, 2,216,297 gallons of ground water were recovered from the Northeast Site and Building 100 recovery wells. The volume of recovered ground water treated by the Northeast Site treatment system since its startup in June 1997 through June 2003 is presented in Figure 23. Figures 24, 25, and 26 present the monthly volume of ground water recovered during April through June 2003 from the Northeast Site recovery wells.

The monthly ground water recovery from April through June 2003 for the Building 100 recovery wells is presented in Figures 27, 28, and 29, respectively.

Total percent on-time for the Northeast Site AST is illustrated in Figure 30. On-time for the AST for this quarter was 100 percent. Historical summary of ground water recovery volume at the Northeast Site and Building 100 is shown in Table 13.

Table 14 presents the calculated mass of selected analytes recovered with the Northeast Site treatment system for each month of this reporting period. These monthly results are based on the measured system influent concentration and influent ground water flow.

5.2 Wastewater Neutralization Area

The two recovery wells (PIN18−RW02 and −RW03) continue to each produce approximately 2.5 gallons per minute (gpm) continuously with an electrical submersible pump set in each well at approximately 12 ft below land surface (bls). During late May, monitoring well PIN18−0501 was converted to a recovery well in an effort to recover ground water containing the highest concentration of arsenic at the WWNA. This well is now identified as PIN18−RW0501. A submersible electric pump was installed in RW0501 at 15 ft below top of casing. The associated pump controller, electrical components, and totalizing flowmeter were installed on a post immediately adjacent to the well.

Ground water recovery from PIN18−RW0501 was started on June 11, 2003, at the rate of 0.4 gpm. Daily ground water samples were collected for arsenic analysis for 1 week (5 working days) from all three recovery wells, their combined discharge, and the IWNF discharge to the Publicly Owned Treatment Works. Upon completion of the daily sampling, weekly sampling was performed for the weeks of June 23 and 30. To date, there have been no exceedances of the WWNA discharge permit limits for arsenic.

Starting the week of July 7, the flow rate will be increased to 0.8 gpm. Daily sampling for 1 week will resume, followed by three weekly sampling events.

The effluent ground water from each well is combined into a common header pipe and discharged into the industrial wastewater-receiving tank at the IWNF. During this quarter, 682,554 gallons of ground water were recovered from the subsurface.

6.0 Conclusions

The following conclusions are based on the quarterly sampling conducted in April 2003.

- The surficial ground water flow rate and flow direction throughout the site were similar to those observed in previous quarters.
- The highest concentration of COPCs was detected at the Northeast Site in well PIN15−RW03.
- The operation of the Northeast Site recovery wells appears to be controlling plume movement along the southern perimeter of the Northeast Site.

7.0 Tasks to be Performed Next Quarter

The following tasks are expected to be conducted during the next quarterly period (July through September 2003):

- Quarterly sampling activities will occur in July 2003.

- Monthly and mid-monthly sampling and analysis of ground water will continue in order to provide compliance and system operations data.

- Treatment system optimization will continue as new issues develop.

- Utilization of the dedicated bladder pumps for quarterly sampling using the micropurging technique will continue.

- Assessment of Northeast Site Area A NAPL remediation effectiveness that began in March will extend through late July 2003.

- Increase the flow rate from PIN18−RW0501 and start another daily and weekly sampling routine.

8.0 References

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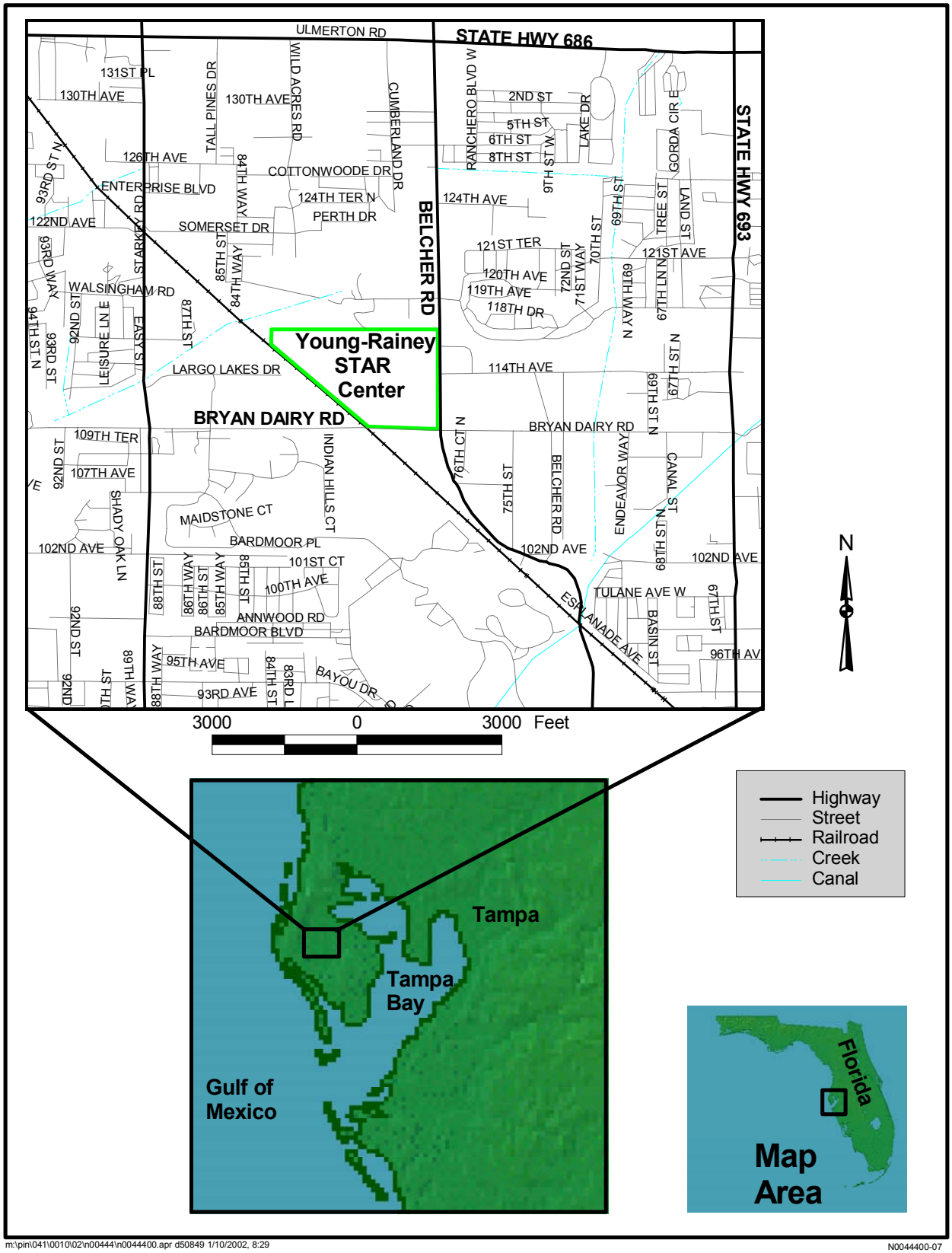

Figure 1. Young - Rainey STAR Center Location

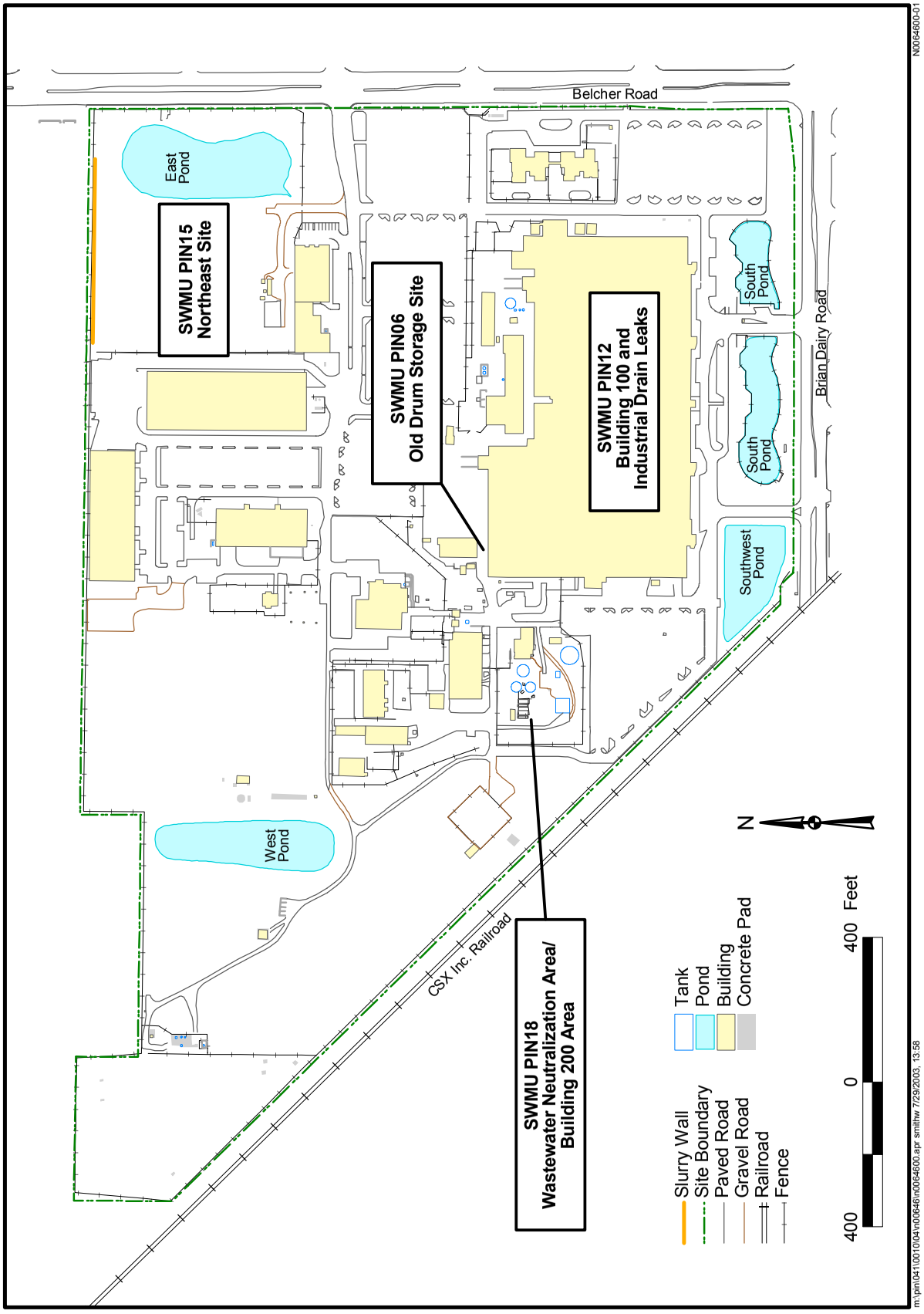

Figure 2. Location of STAR Center Solid Waste Management Units (SWMUs)

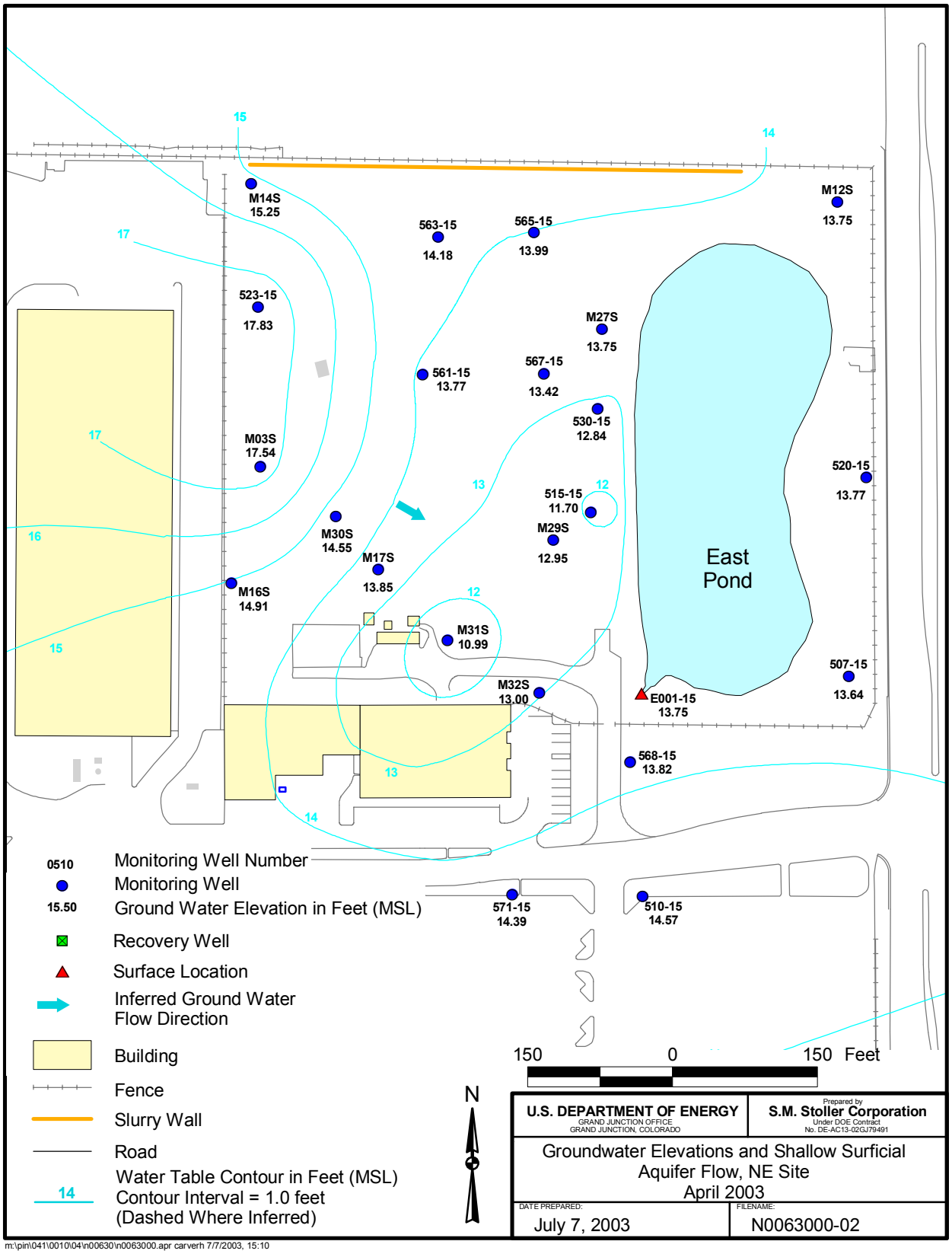

Figure 3. Ground Water Elevations and Shallow Surficial Aquifer Flow, Northeast Site, April 2003

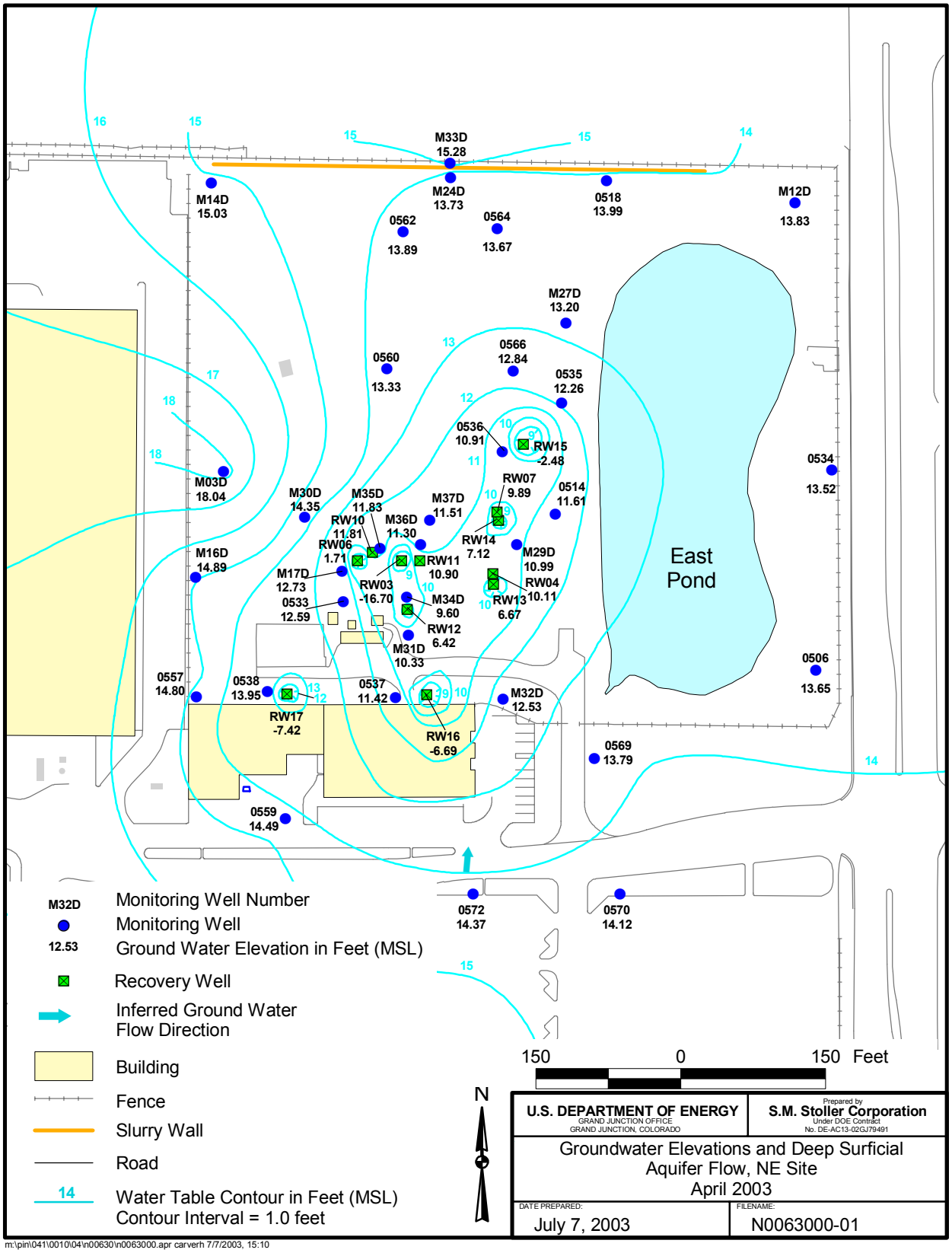

Figure 4. Ground Water Elevations and Deep Surficial Aquifer Flow, Northeast Site, April 2003

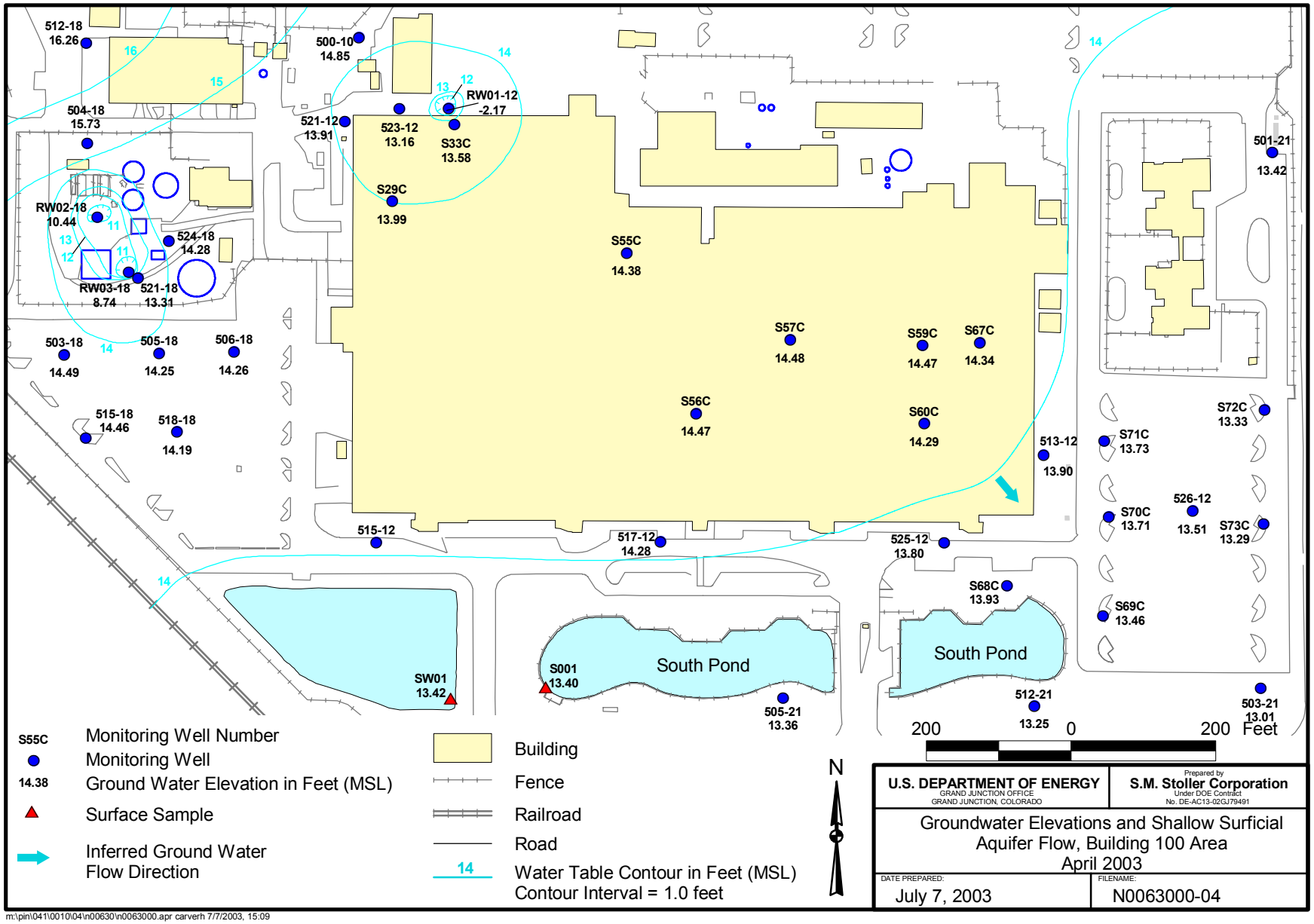

Figure 5. Ground Water Elevations and Shallow Surficial Aquifer Flow, Building 100 Area, April 2003

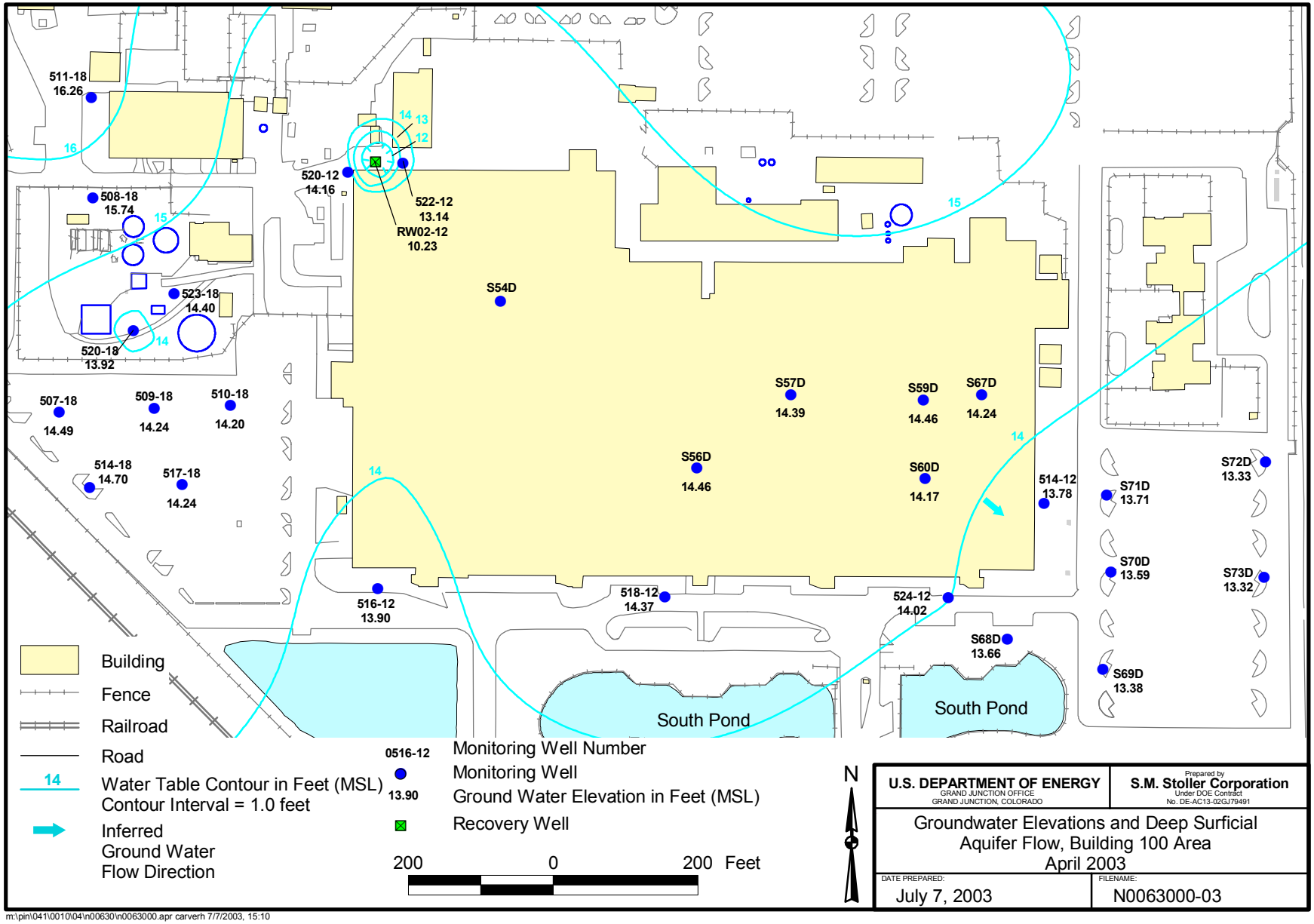

Figure 6. Ground Water Elevations and Deep Surficial Aquifer Flow, Building 100 Area, April 2003

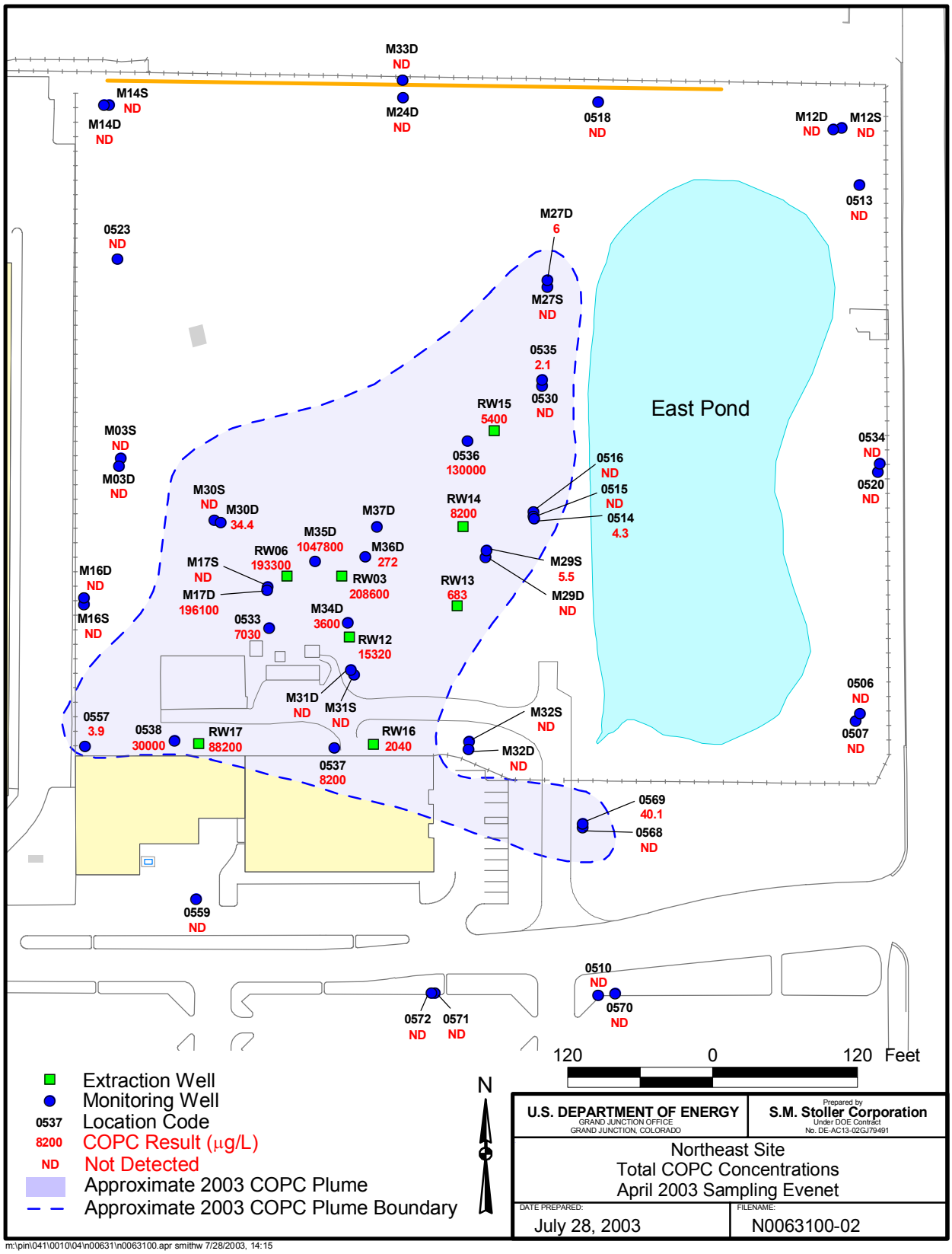

Figure 7. Northeast Site Total COPC Concentrations April 2003 Sampling Event

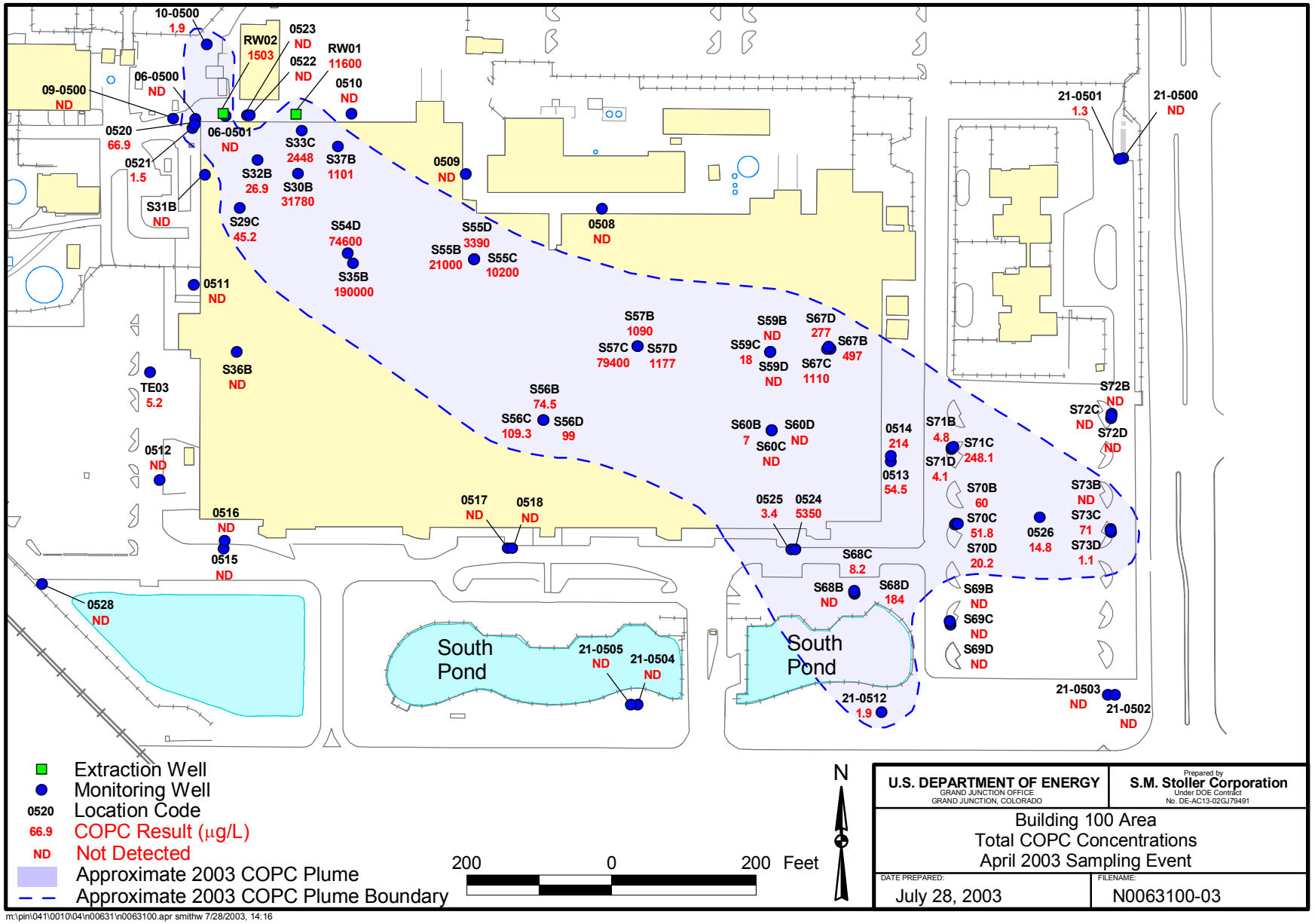

Figure 8. Building 100 Area Total COPC Concentrations April 2003 Sampling Event

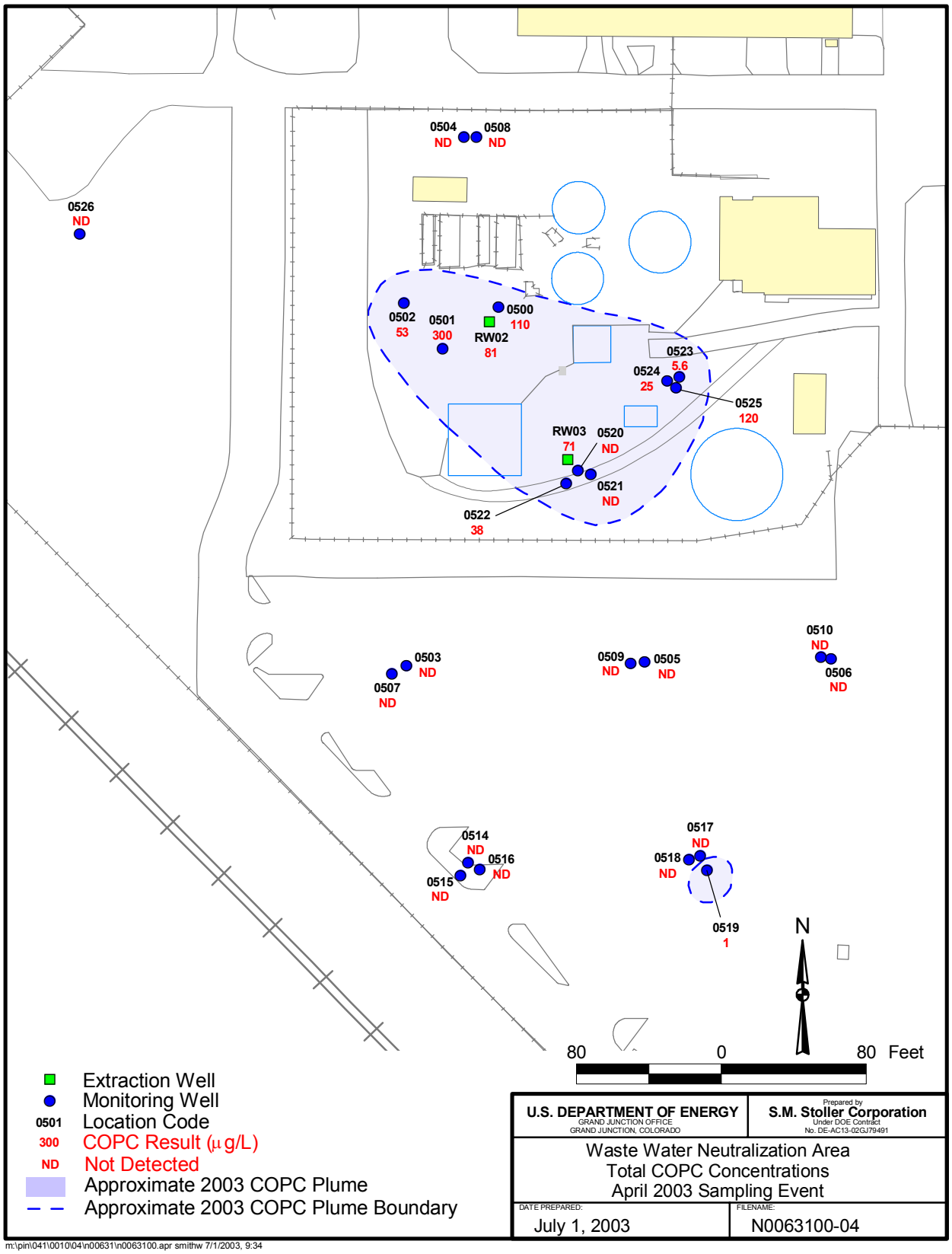

Figure 9. WWNA Total COPC Concentrations April 2003 Sampling Event

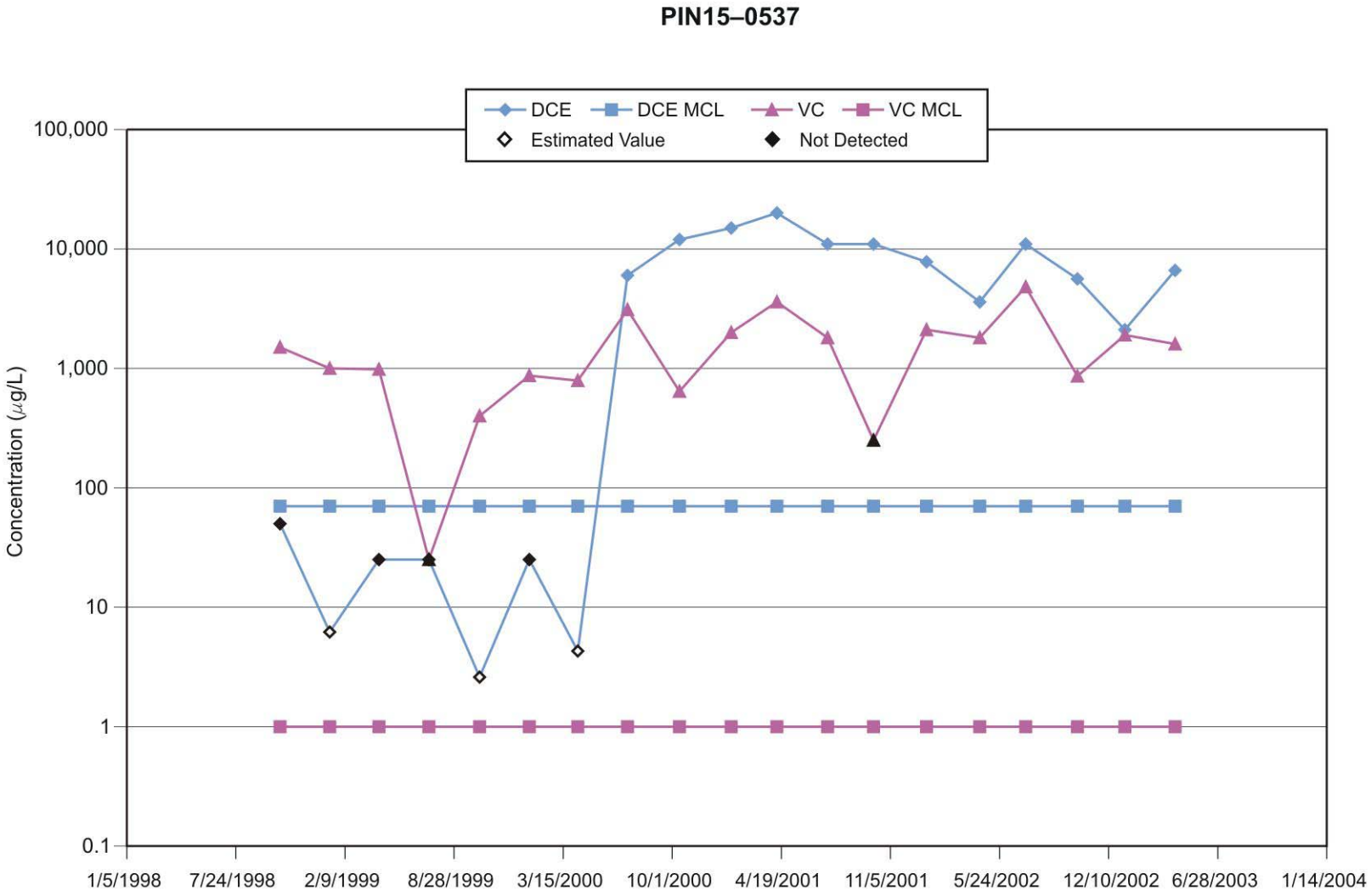

Figure 10. Vinyl Chloride and cis-1,2-DCE Trends in PIN15–0537

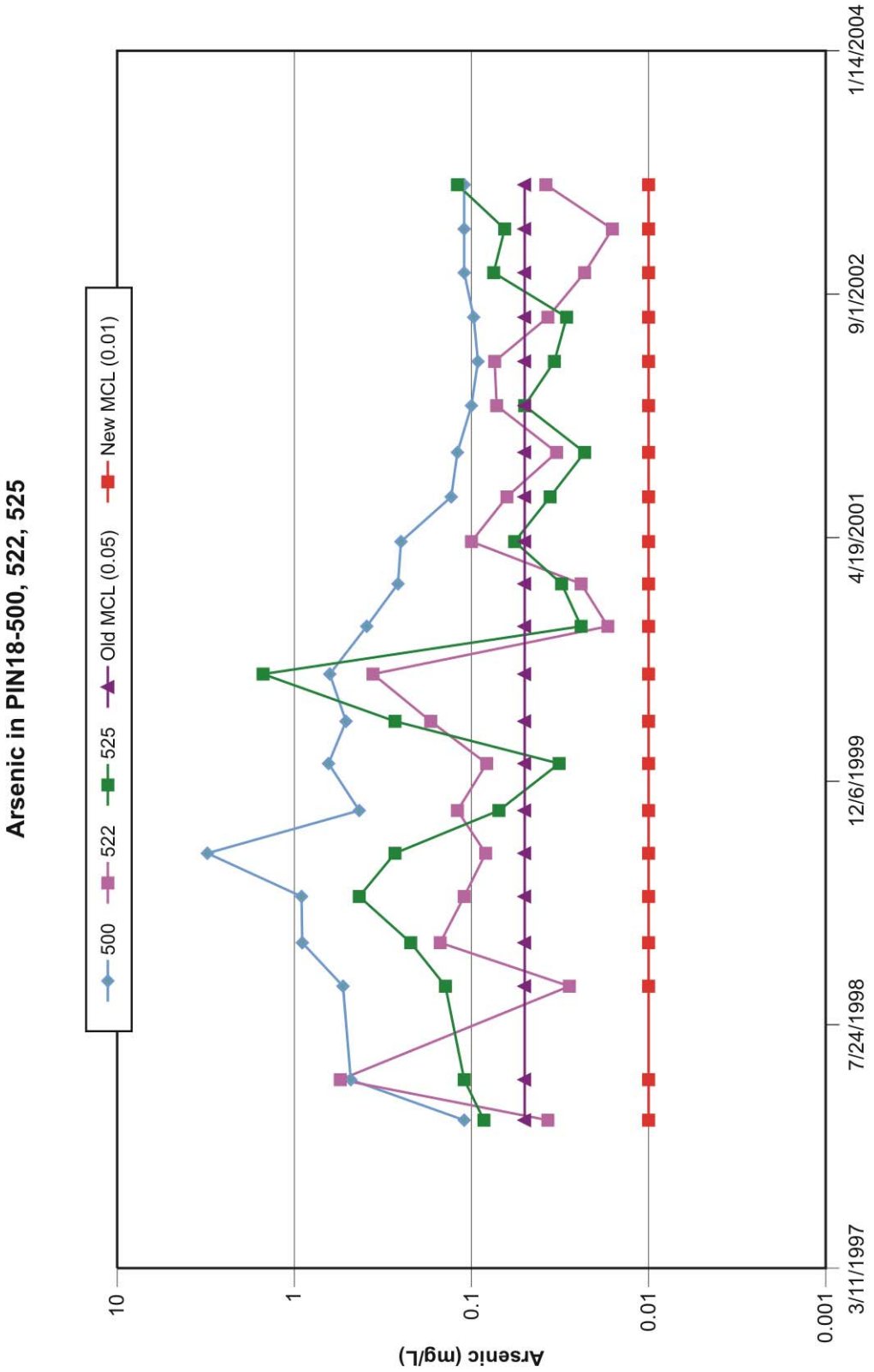

Figure 11. Arsenic Trends in PIN18–0500, –0522, and –0525

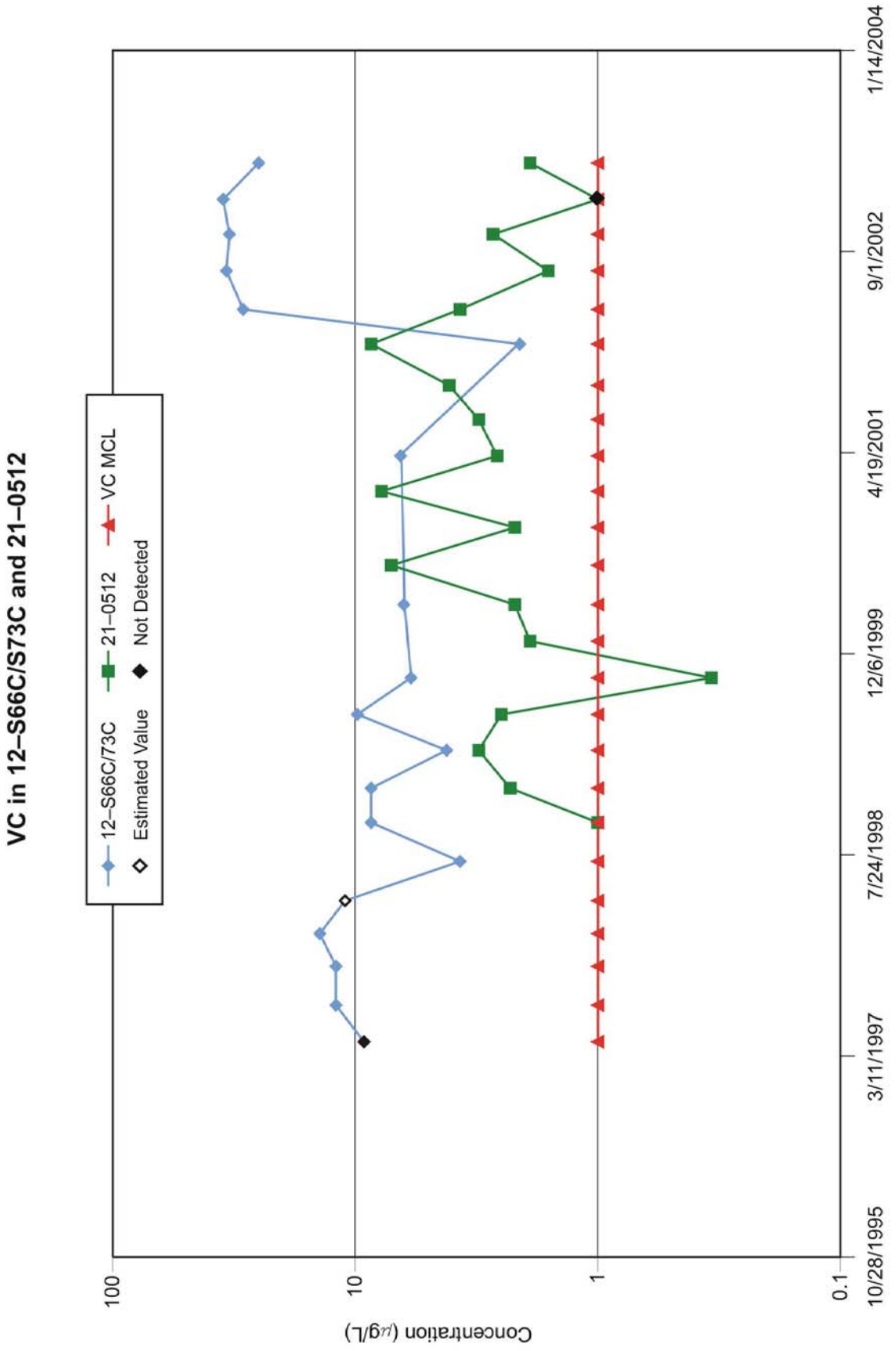

Figure 12. Vinyl Chloride Trends in PIN21–0512, and PIN12–S66C/S73C

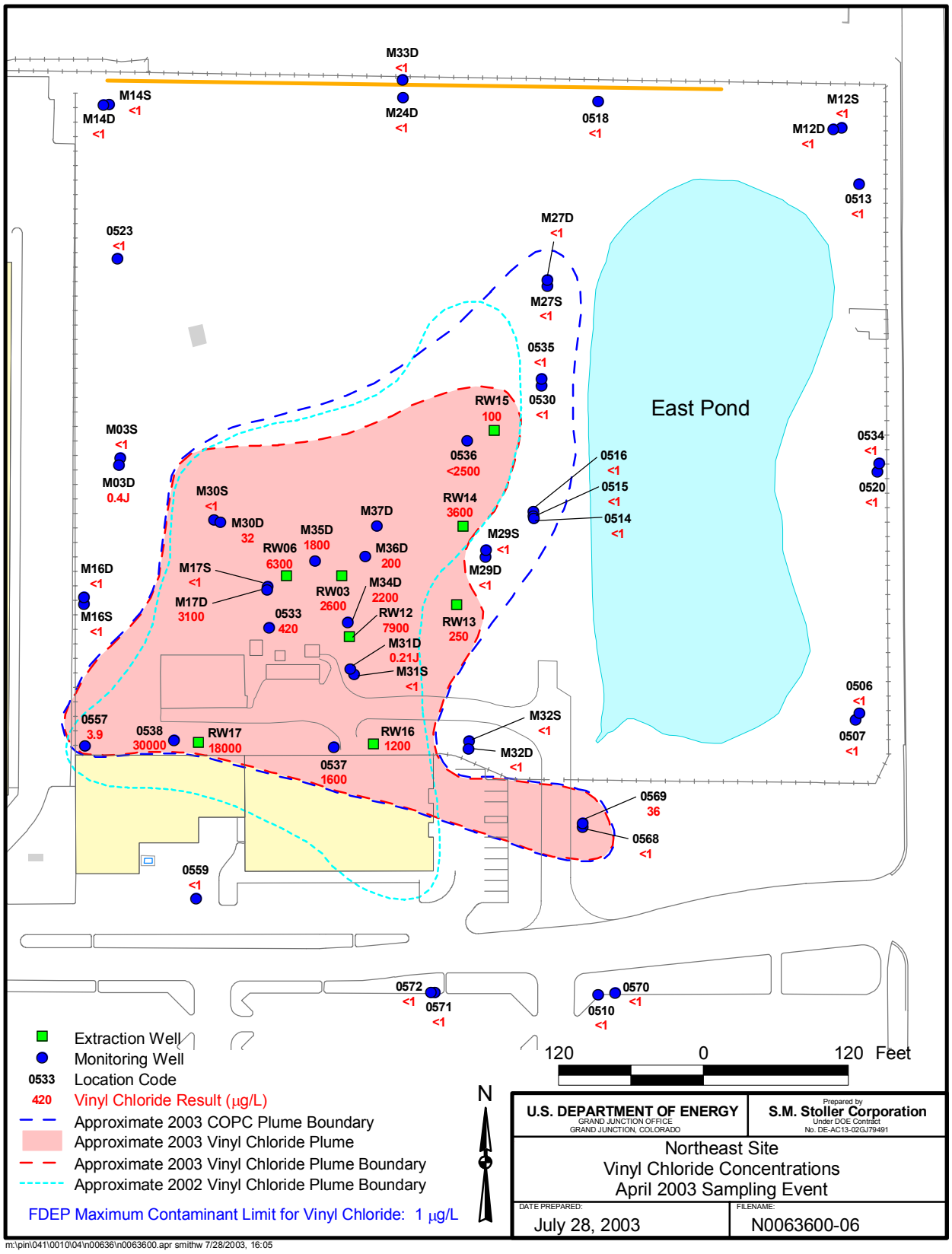

Figure 13. Vinyl Chloride Concentrations at the Northeast Site in April 2003

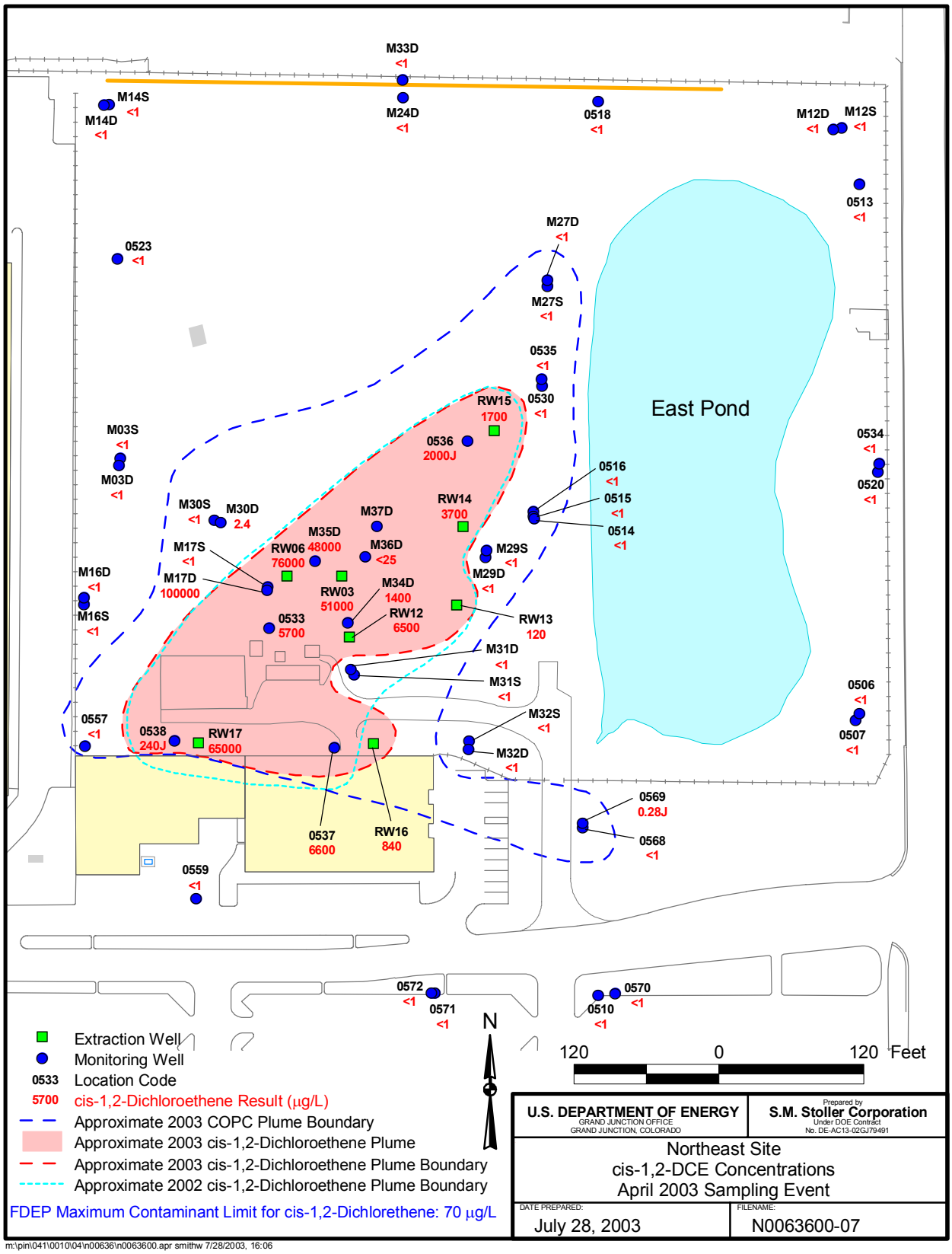

Figure 14. Cis-1,2-DCE Concentrations at the Northeast Site in April 2003

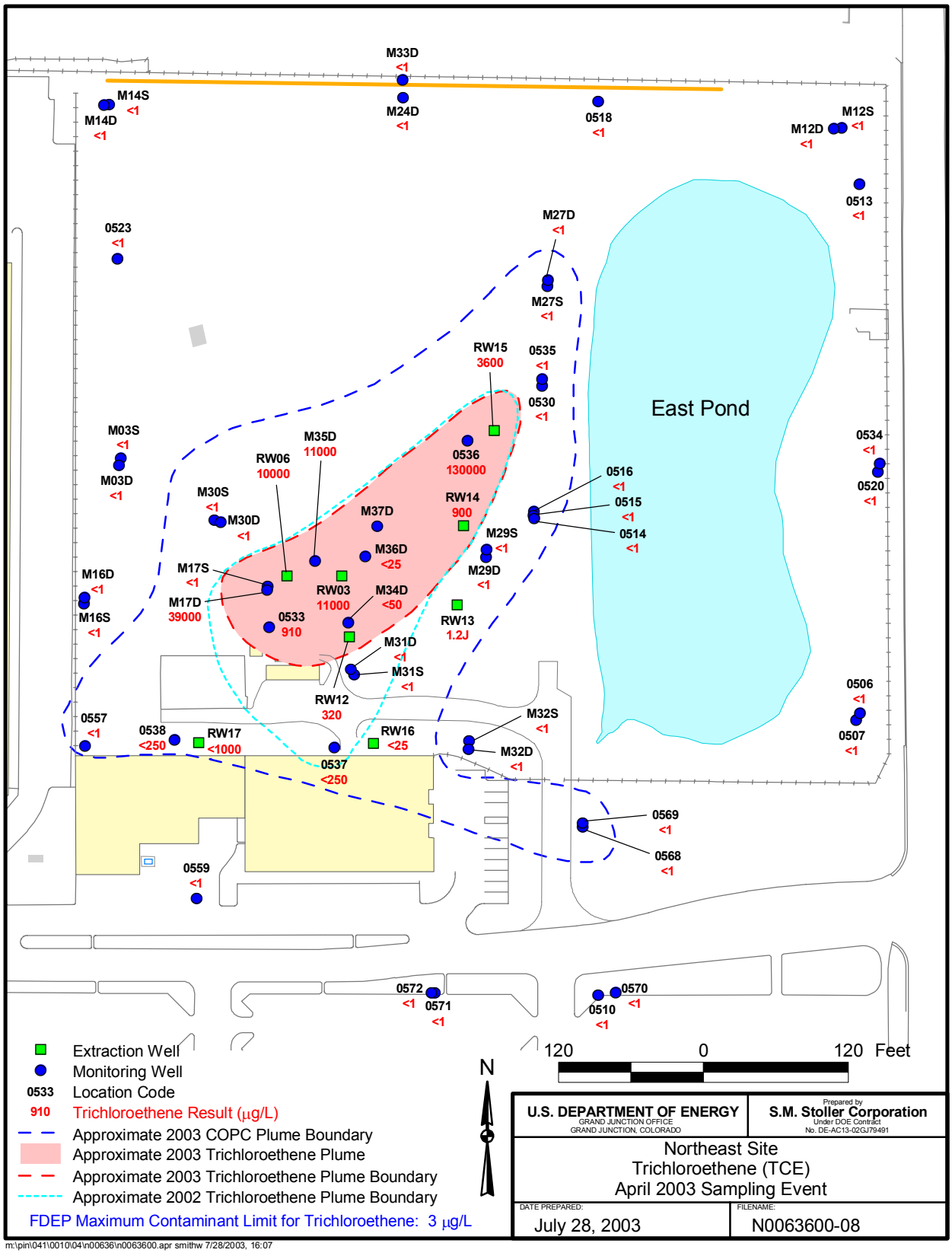

Figure 15. TCE Concentrations at the Northeast Site in April 2003

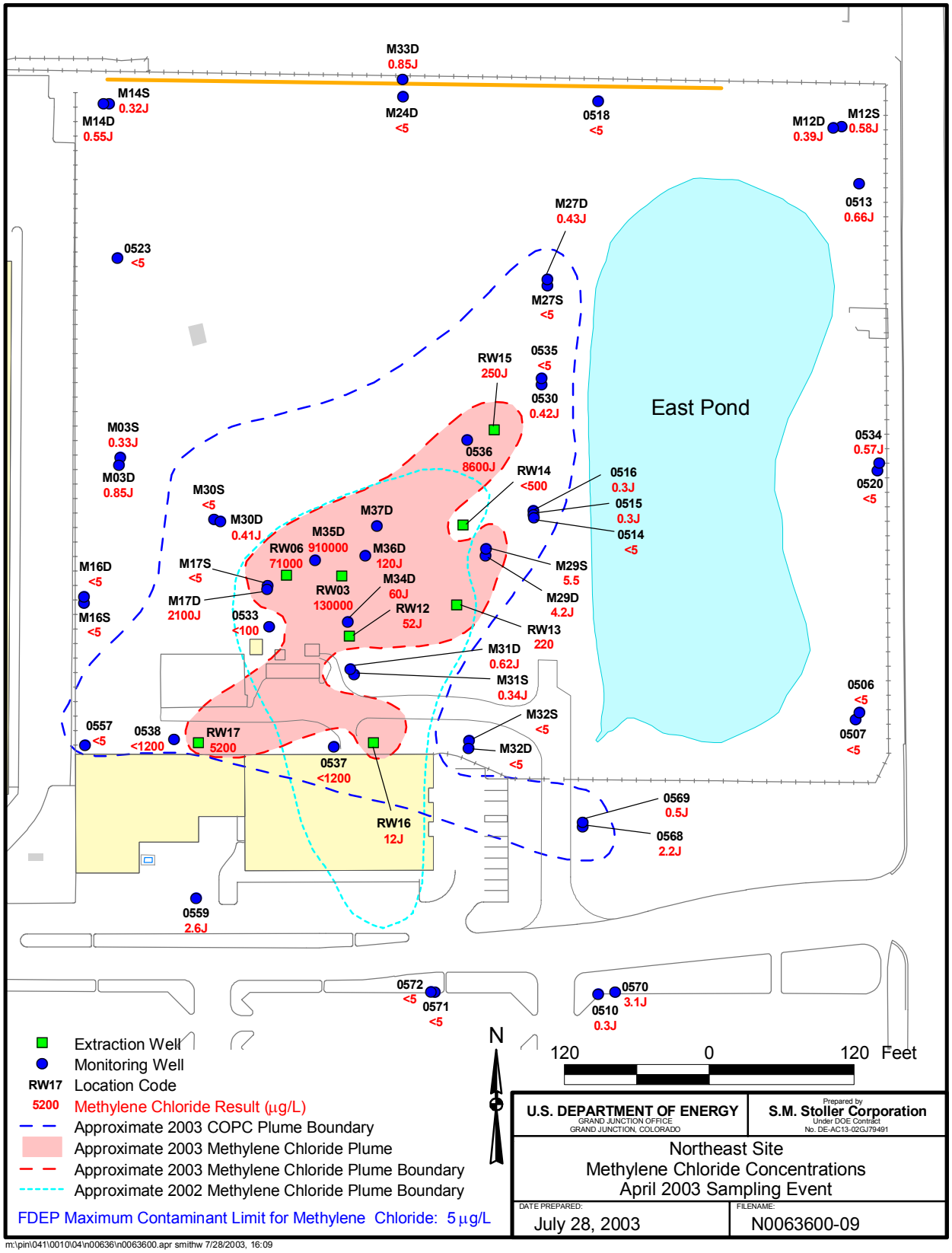

Figure 16. Methylene Chloride Concentrations at the Northeast Site in April 2003

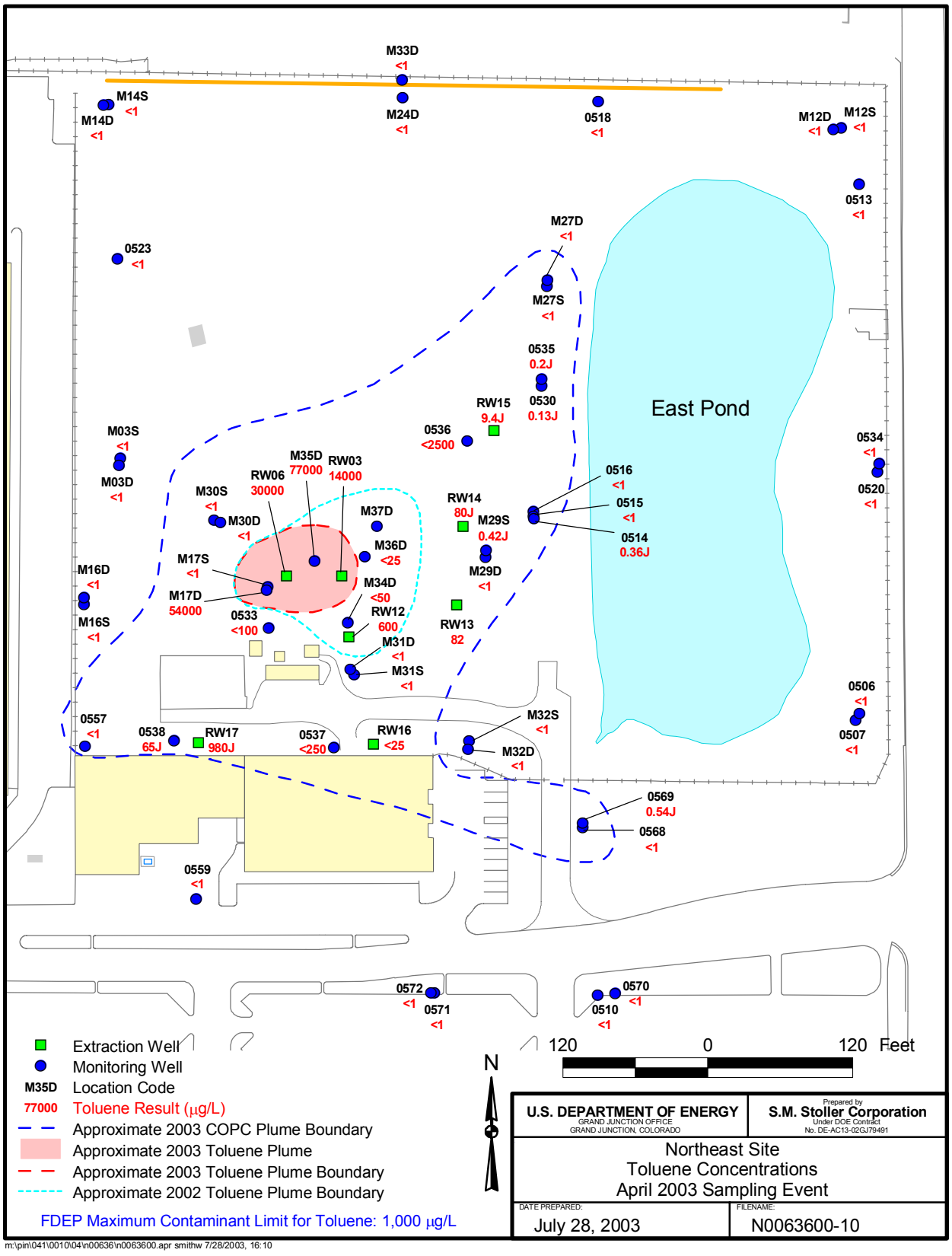

Figure 17. Toluene Concentrations at the Northeast Site in April 2003

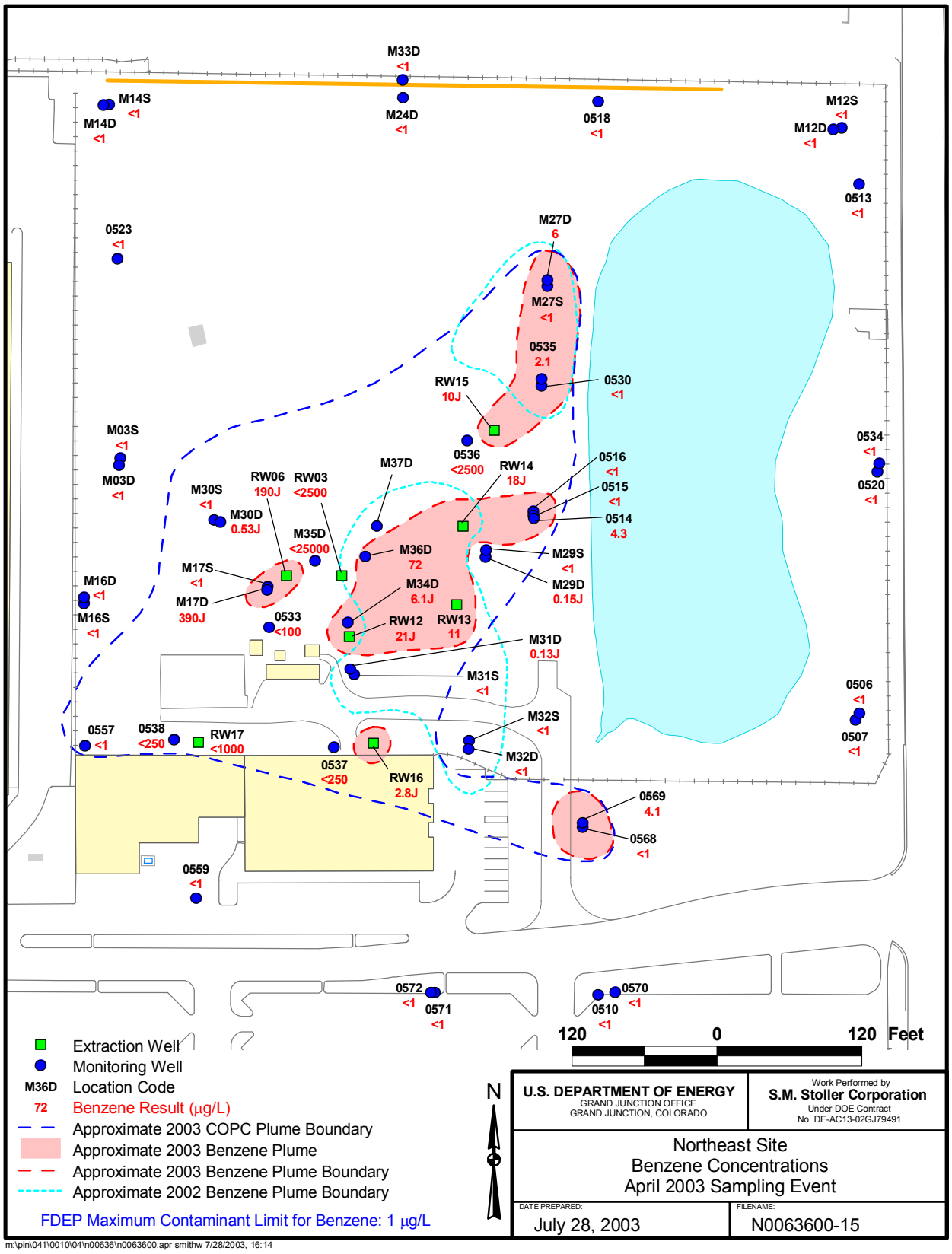

Figure 18. Benzene Concentrations at the Northeast Site in April 2003

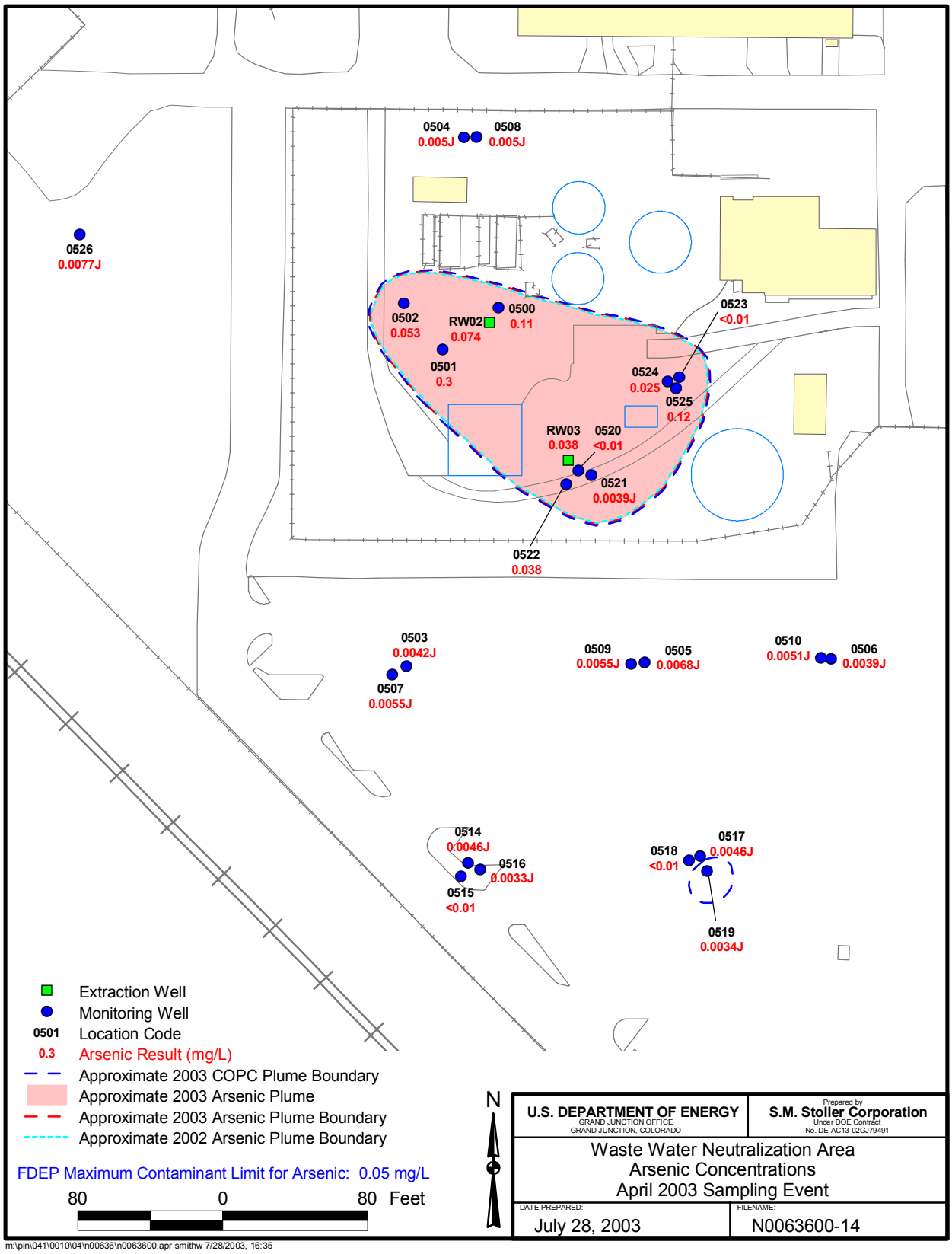

Figure 19. Arsenic Concentrations at the WWNA, April 2003

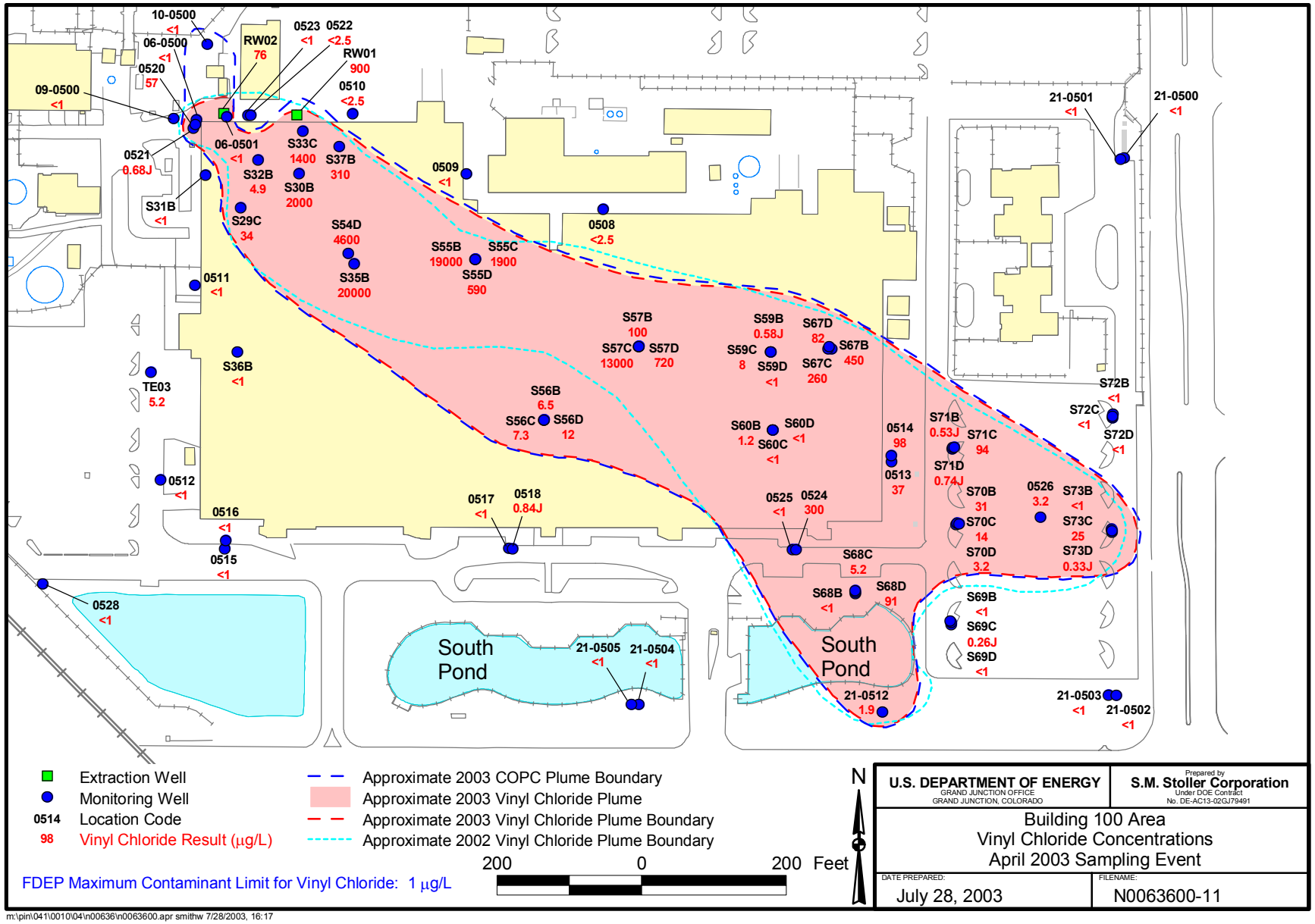

Figure 20. Vinyl Chloride Concentrations at the Building 100 Area in April 2003

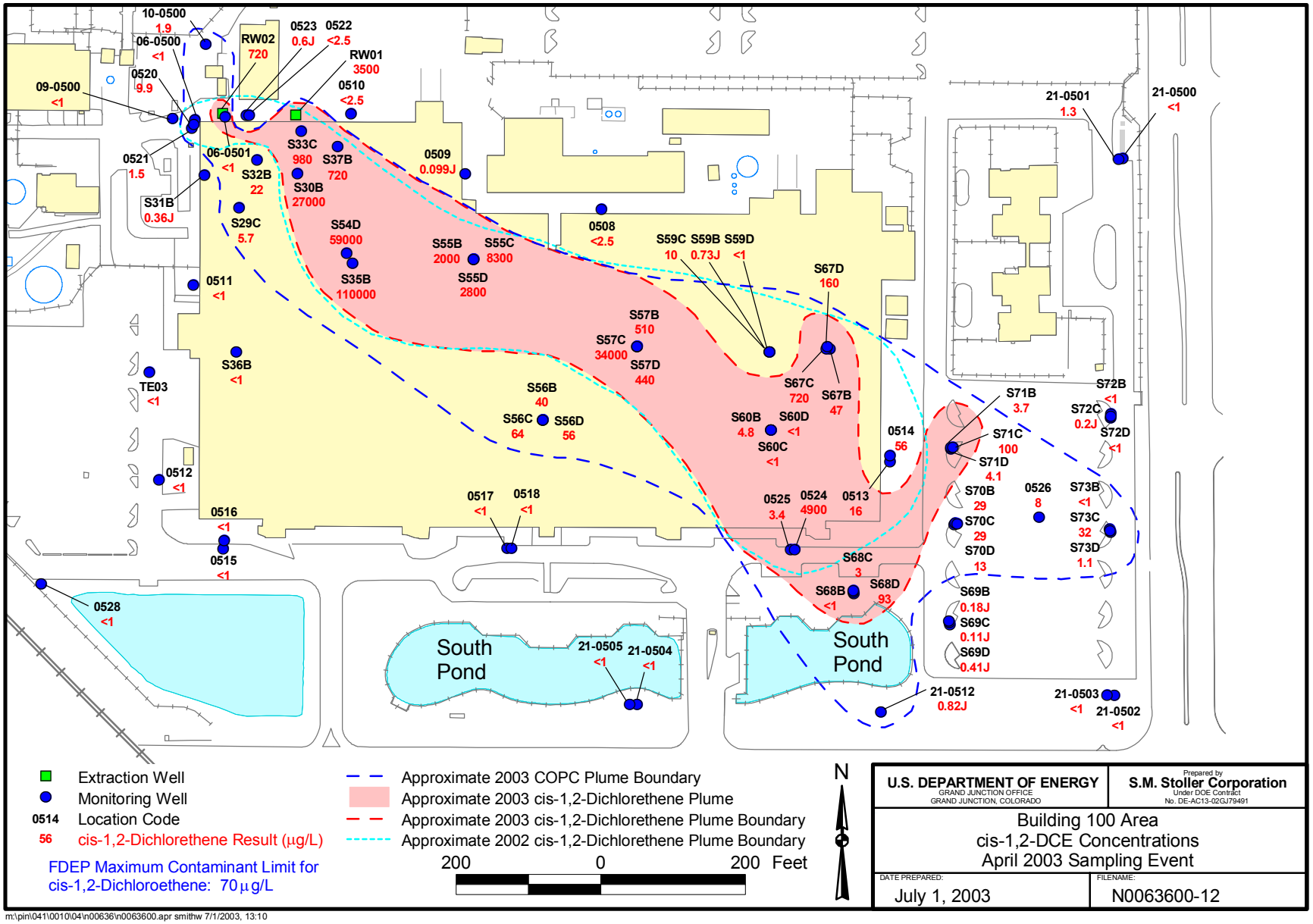

Figure 21. Cis-1,2-DCE Concentrations at the Building 100 Area in April 2003

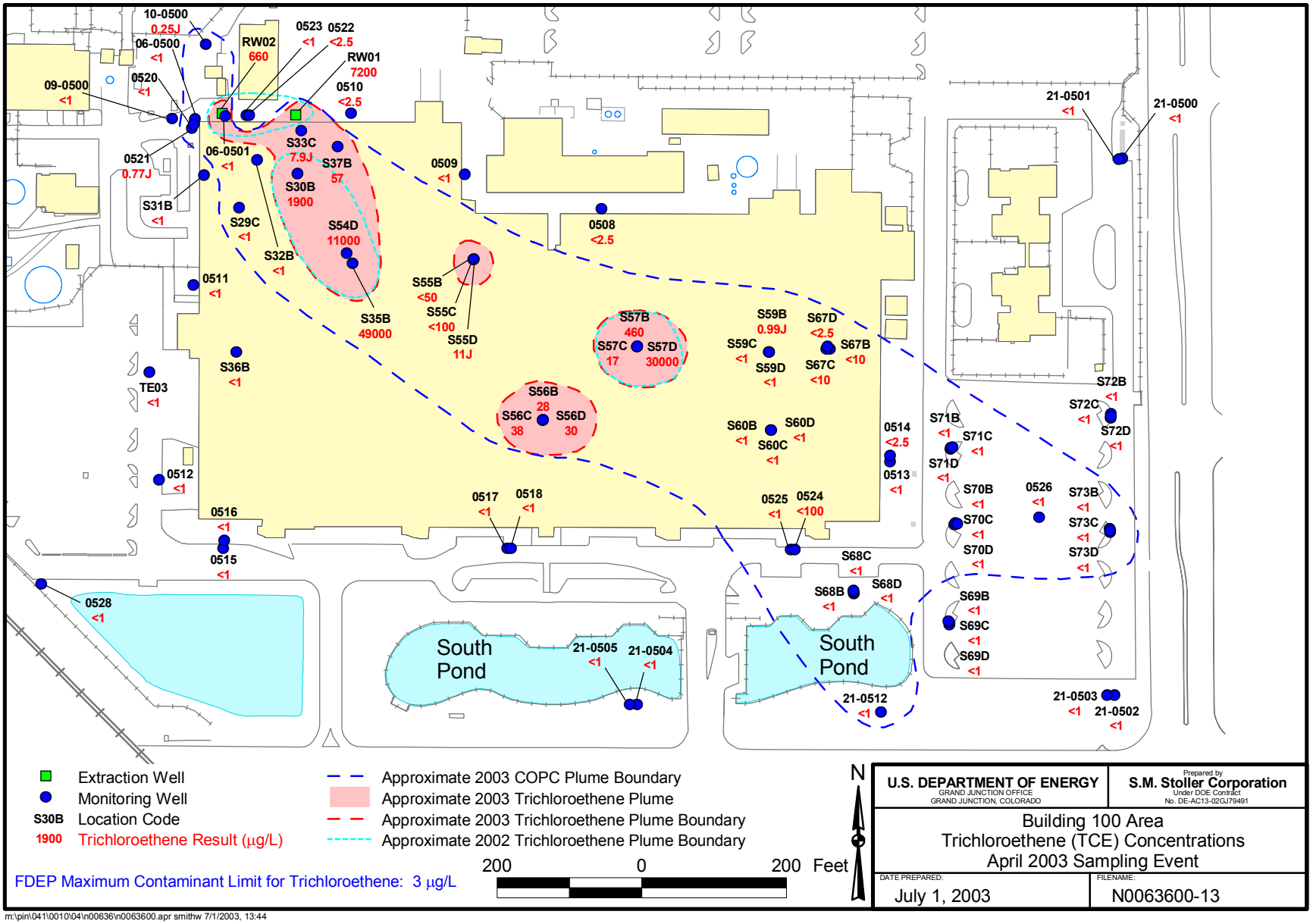

Figure 22. TCE Concentrations at the Building 100 Area in April 2003

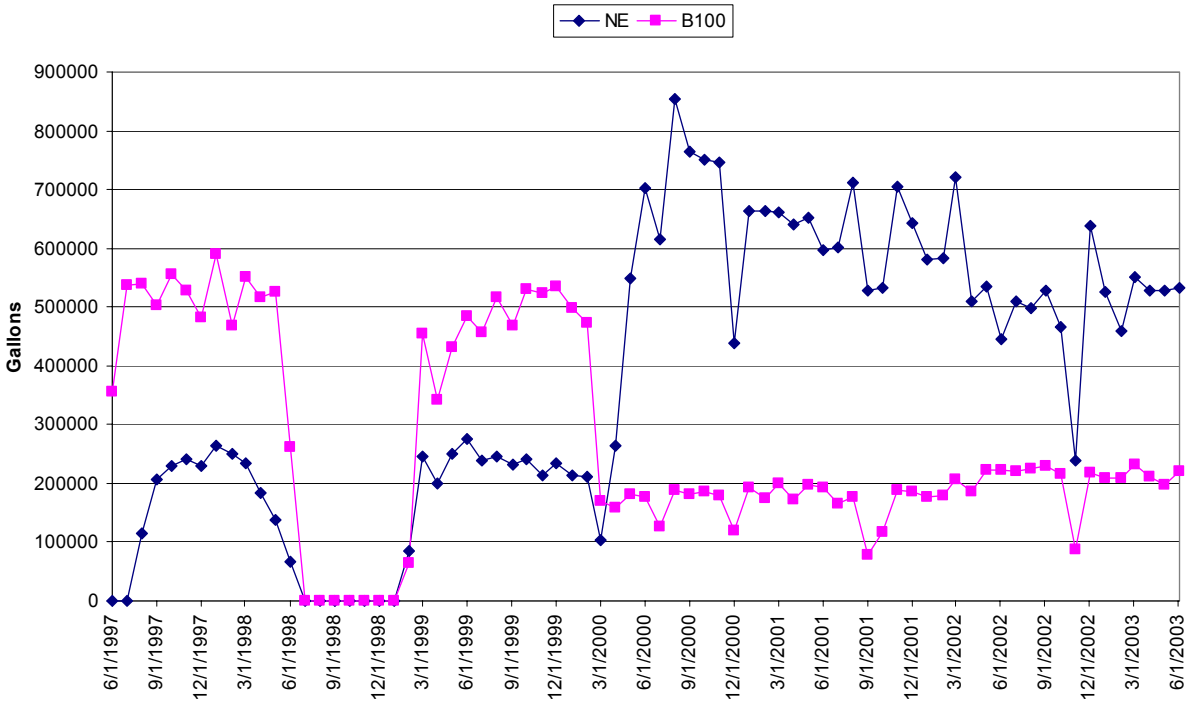

Figure 23. Historical Northeast Site and Building 100 Ground Water Recovery

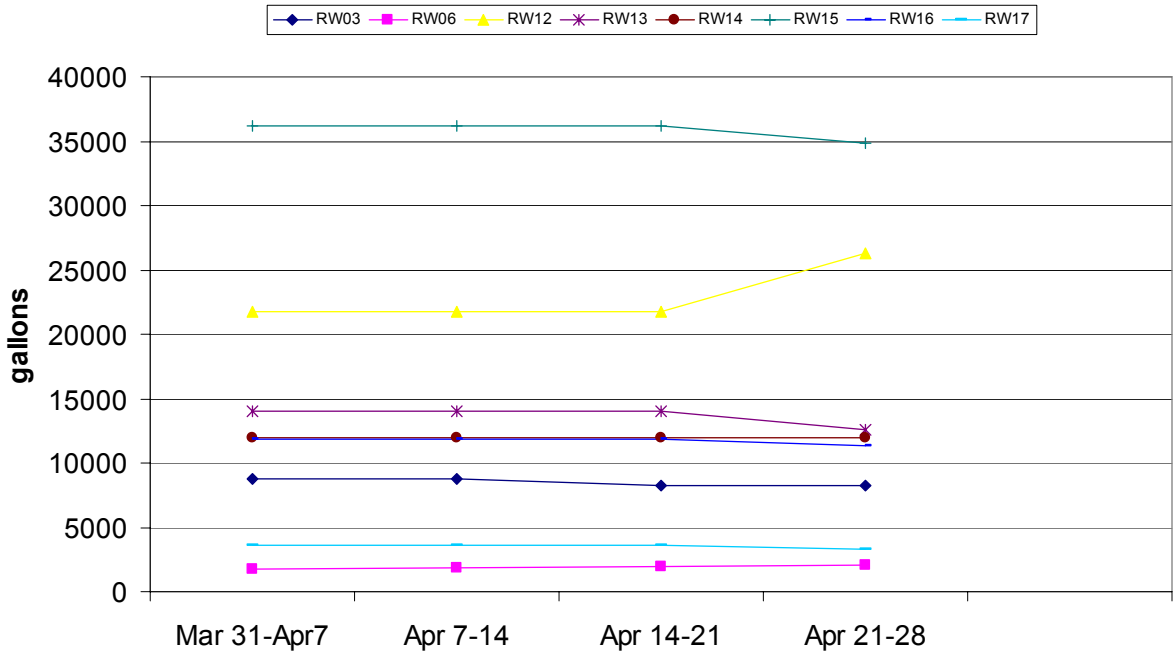

Figure 24. April 2003 Northeast Site (Individual Wells) Ground Water Recovery

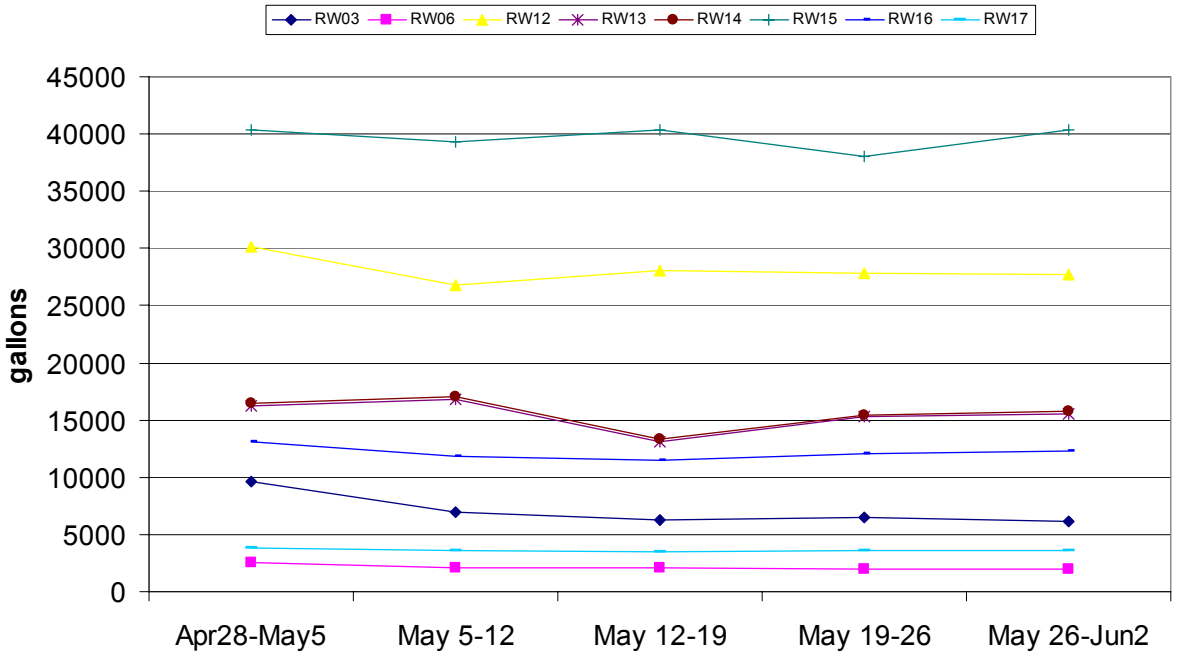

Figure 25. May 2003 Northeast Site (Individual Wells) Ground Water Recovery

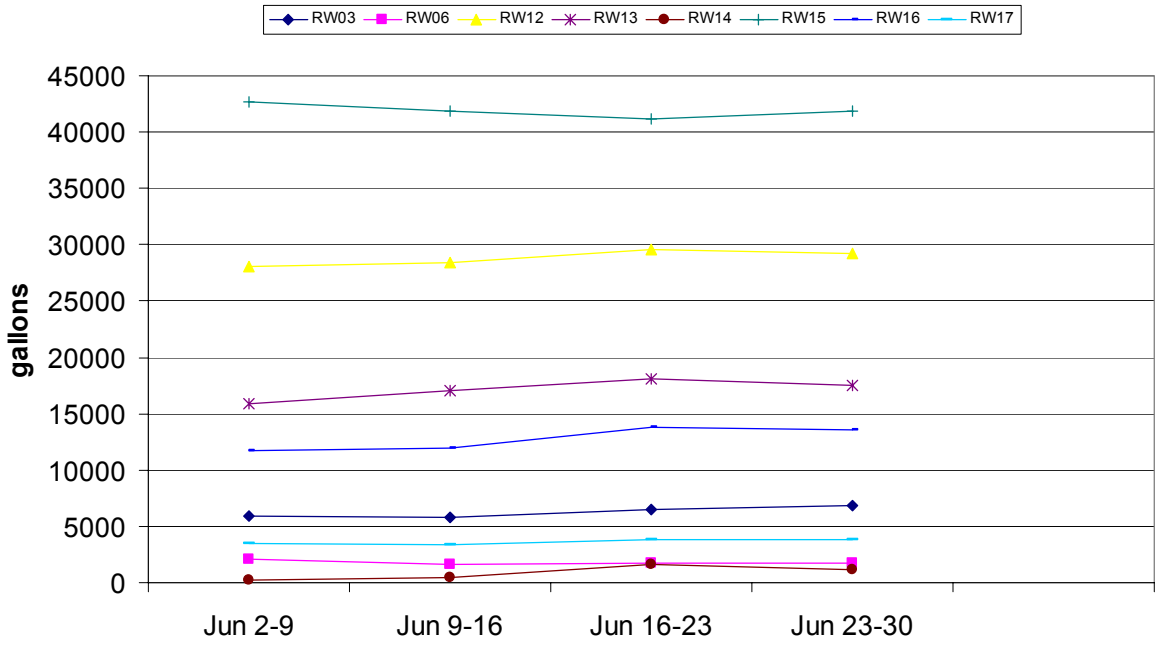

Figure 26. June 2003 Northeast Site (Individual Wells) Ground Water Recovery

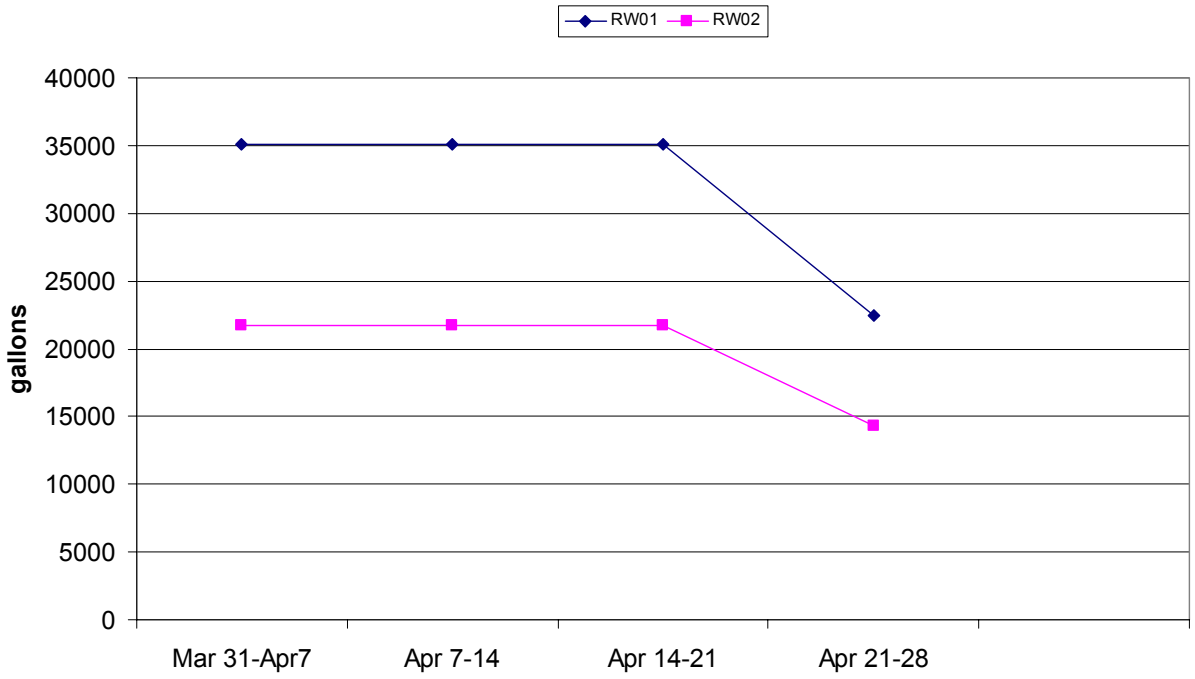

Figure 27. April 2003 Building 100 Ground Water Recovery

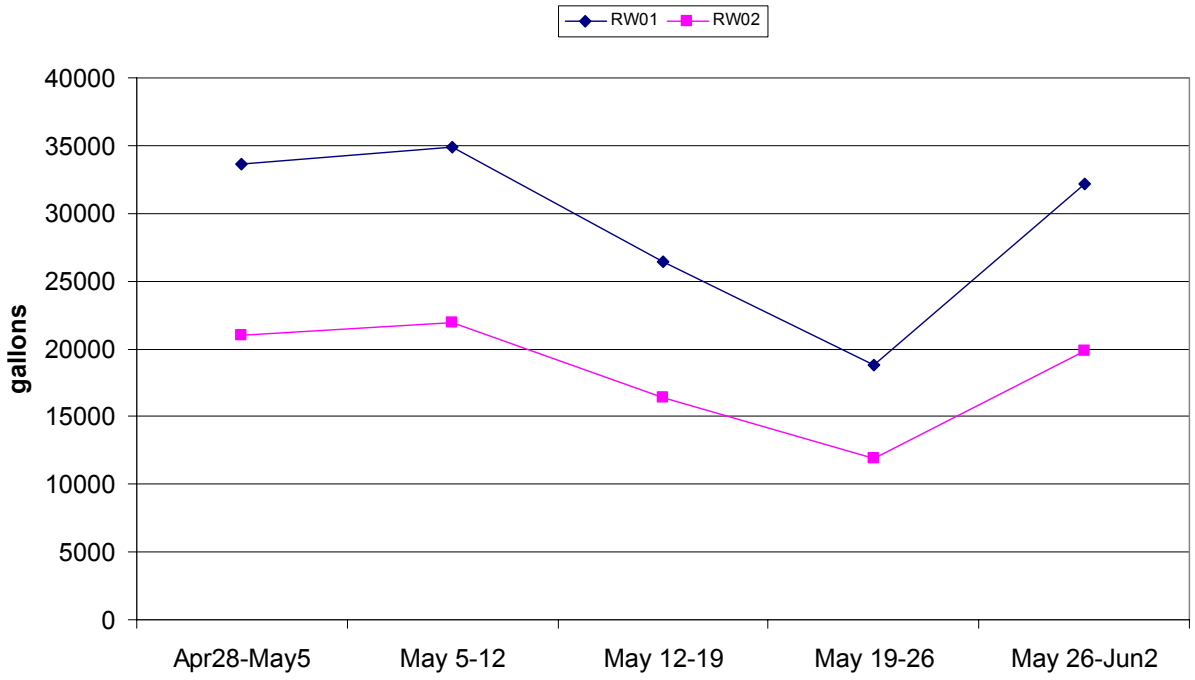

Figure 28. May 2003 Building 100 Ground Water Recovery

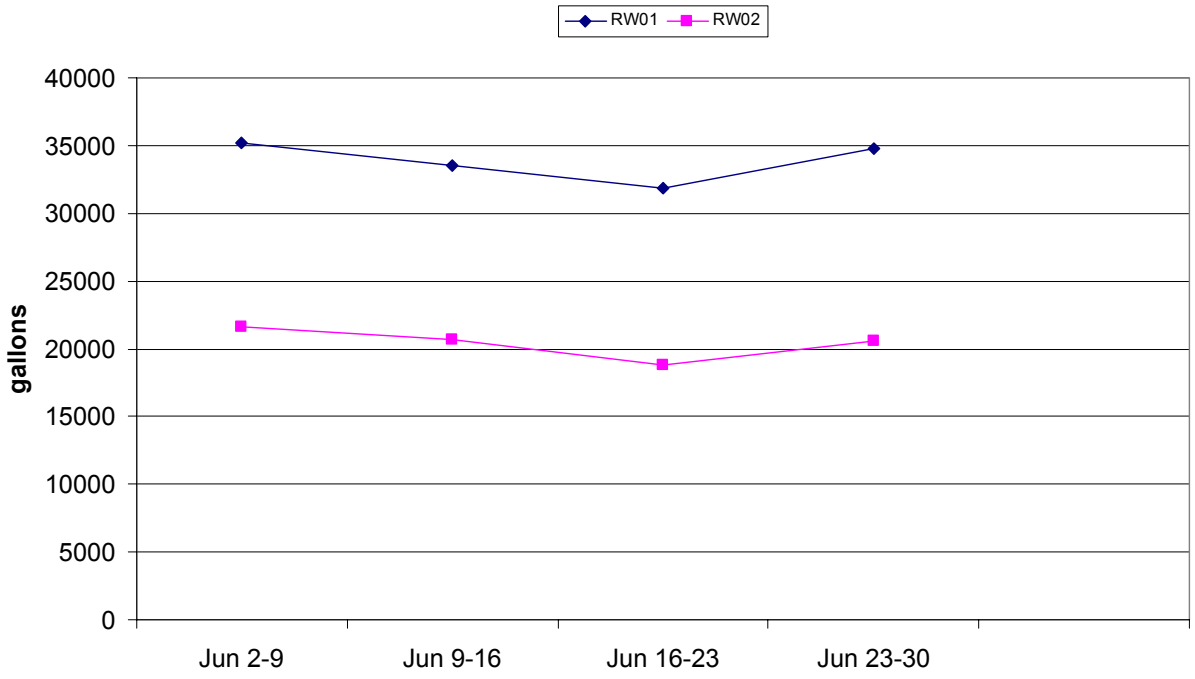

Figure 29. June 2003 Building 100 Ground Water Recovery

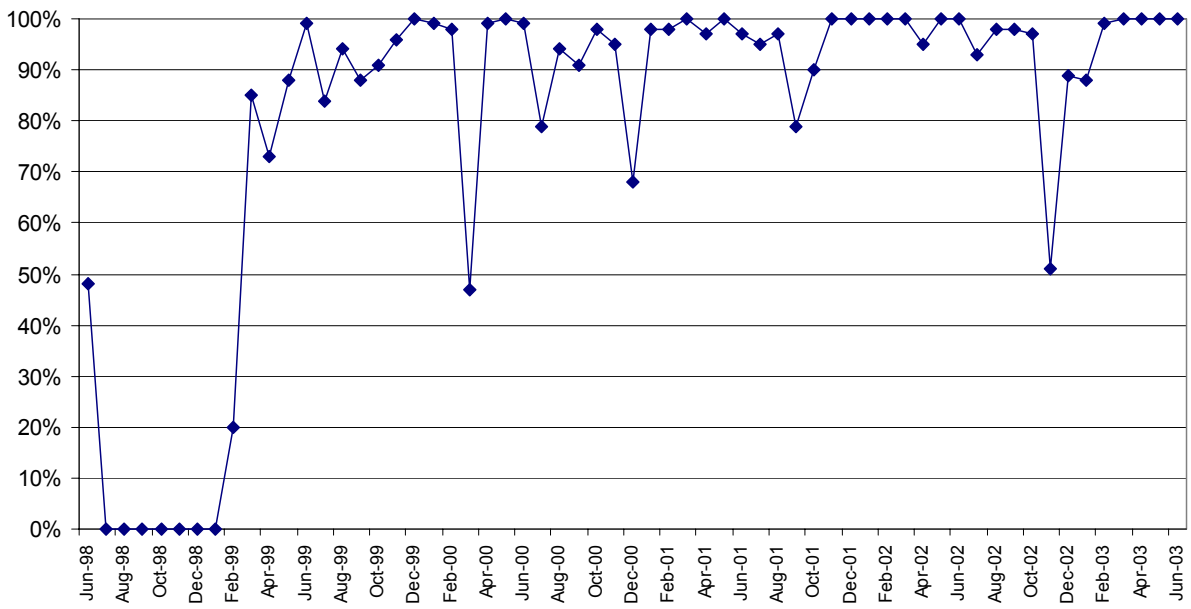

Figure 30. Historical Northeast Site Air Stripper—Percent Time On-Line

Table 1. WWNA Recovery Well Startup Monitoring Arsenic Concentrations (reported in milligrams per liter)

Sample Date	RW02	RW03	RW0501[a]	RW02/RW03/RW0501 combined effluent
2/26/2001	0.08	0.1		0.095
2/27/2001	0.074	0.1		0.091
2/28/2001	0.074	0.091		0.074
3/1/2001	0.084	0.096		0.088
3/2/2001	0.088	0.095		0.089
3/5/2001	0.13	0.22		0.1
3/12/2001	0.37	0.11		0.13
3/19/2001	0.42	0.12		0.12
3/26/2001	0.15	0.16		0.8
4/2/2001	0.18	0.12		0.13
4/16/2001	0.18	0.17		0.13
5/1/2001	0.16	0.071		0.1
5/15/2001	0.14	0.15		0.093
5/30/2001	0.13	0.07		0.16
6/11/2001	0.11	0.068		0.083
6/26/2001	0.13	0.067		0.096
7/9/2001	0.14	0.054		0.087
7/23/2001	0.14	0.25		0.074
8/6/2001	0.11	0.2		0.18
8/21/2001	0.13	0.074		0.084
9/5/2001	0.13	0.054		0.091
10/8/2001	0.11	0.14		0.07
11/6/2001	0.095	0.053		0.076
12/7/2001	0.13	0.081		0.084
1/10/2002	0.11	0.081		0.076
2/5/2002	0.11	0.055		0.075
3/6/2002	0.12	0.05		0.076
4/2/2002	0.084	0.055		0.069
4/15/2002	--	0.049		--
4/16/2002	0.078	--		--
5/8/2002	0.11	0.048		0.071
6/4/2002	0.095	0.078		0.058
7/3/2002	0.16	0.056		0.074
7/15/2002	0.098	0.057		--
8/8/2002	0.0036J	0.11		0.065
9/10/2002	0.12	0.097		0.07
10/3/2002	0.097	0.054		0.071
11/22/2002	0.11	0.067		0.057
12/11/2002	0.11	0.056		0.07
1/2/2003	0.097	0.049		0.064
1/13/2003	0.082	0.061		--
2/4/2003	0.12	0.047		0.063
3/4/2003	0.079	0.19		0.059

Table 1 (continued). WWNA Recovery Well Startup Monitoring Arsenic Concentrations (reported in milligrams per liter)

Sample Date	RW02	RW03	RW0501[a]	RW02/RW03/RW0501 combined effluent
4/7/2003	0.081	0.071		0.054
5/5/2003	0.074	0.038		0.052
6/3/2003	0.089	0.042		0.054
6/11/2003	0.07	0.044	0.42	0.073
6/12/2003	0.074	0.048	0.32	0.066
6/13/2003	0.072	0.075	0.21	0.066
6/16/2003	0.071	0.3	0.28	0.063
6/17/2003	0.068	0.11	0.26	0.066

[a]Recovery well RW0501 was brought online on 06/11/2003.
-- = Not Measured.
J = Estimated value, result is between the reporting limit and the method detection limit.

Table 2. Water-Level Data at the STAR Center

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
PIN06			**Old Drum Storage Site**	
0500	4/4/2003	13:22	3.52	14.48
0501	4/4/2003	13:20	4.04	14.26
PIN09			**Incinerator Site**	
0500	4/4/2003	13:26	3.06	14.91
PIN10			**Incinerator Ditch**	
0500	4/4/2003	13:24	3.05	14.85
PIN12			**Industrial Drain Leaks Bldg 100**	
0508	4/4/2003	13:03	3.66	14.70
0509	4/4/2003	13:06	3.61	14.43
0510	4/4/2003	13:09	4.16	13.90
0511	4/4/2003	11:10	3.69	14.11
0512	4/4/2003	08:07	2.62	14.19
0513	4/4/2003	08:40	4.60	13.90
0514	4/4/2003	08:41	4.72	13.78
0516	4/4/2003	11:06	4.10	13.90
0517	4/4/2003	10:53	3.62	14.28
0518	4/4/2003	10:52	3.57	14.37
0520	4/4/2003	13:22	3.85	14.16
0521	4/4/2003	13:21	4.14	13.91
0522	4/4/2003	00:55	5.06	13.14
0523	4/4/2003	13:14	5.00	13.16
0524	4/4/2003	08:56	3.39	14.02
0525	4/4/2003	08:57	3.62	13.80
0526	4/4/2003		3.31	13.51
0527	4/4/2003	08:02	11.03	7.04
0528	4/4/2003	12:55	10.89	6.71
RW01	4/4/2003	13:18	20.42	-2.17
RW02	4/4/2003	13:21	8.10	10.23
S29C	4/4/2003	10:10	4.52	13.99
S30B	4/4/2003	10:20	4.68	13.83
S31B	4/4/2003	10:07	4.28	14.23
S32B	4/4/2003	10:08	4.62	13.89
S33C	4/4/2003	10:14	4.93	13.58
S35B	4/4/2003	10:26	4.56	13.95
S36B	4/4/2003	10:02	4.38	14.13
S37B	4/4/2003	10:15	4.67	13.84
S55B	4/4/2003		4.13	14.38
S55C	4/4/2003		4.13	14.38
S56B	4/4/2003	10:42	4.05	14.46
S56C	4/4/2003	10:43	4.04	14.47
S56D	4/4/2003	10:43	4.05	14.46
S57B	4/4/2003	10:35	4.05	14.46

Table 2 (continued). Water-Level Data at the STAR Center

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
S57C	4/4/2003	10:36	4.03	14.48
S57D	4/4/2003	10:37	4.12	14.39
S59B	4/4/2003	09:10	4.07	14.44
S59C	4/4/2003	09:10	4.04	14.47
S59D	4/4/2003	09:11	4.05	14.46
S60B	4/4/2003	09:04	4.23	14.28
S60C	4/4/2003	09:05	4.22	14.29
S60D	4/4/2003	09:06	4.34	14.17
S67B	4/4/2003	09:23	4.11	14.36
S67C	4/4/2003	09:24	4.13	14.34
S67D	4/4/2003	09:25	4.24	14.24
S68B	4/4/2003	08:47	4.31	13.59
S68C	4/4/2003	08:48	3.97	13.93
S68D	4/4/2003	08:49	4.24	13.66
S69B	4/4/2003	09:31	2.56	13.44
S69C	4/4/2003	09:32	2.54	13.46
S69D	4/4/2003	09:33	2.62	13.38
S70B	4/4/2003	08:32	2.99	13.71
S70C	4/4/2003	08:33	2.99	13.71
S70D	4/4/2003	08:31	3.11	13.59
S71B	4/4/2003	08:36	4.57	13.83
S71C	4/4/2003	08:37	4.67	13.73
S71D	4/4/2003	08:38	4.69	13.71
S72B	4/4/2003	08:15	4.80	13.40
S72C	4/4/2003	08:17	4.87	13.33
S72D	4/4/2003	08:17	4.87	13.33
S73B	4/4/2003	08:20	3.57	13.43
S73C	4/4/2003	08:21	3.71	13.29
S73D	4/4/2003	08:22	3.68	13.32
PIN15			**Northeast Site**	
0506	4/4/2003	09:41	3.35	13.65
0507	4/4/2003	09:40	3.36	13.64
0510	4/4/2003	12:50	2.95	14.57
0513	4/4/2003	09:45	10.48	7.12
0514	4/4/2003	10:01	5.89	11.61
0515	4/4/2003	10:00	5.80	11.70
0518	4/4/2003	09:50	3.81	13.99
0520	4/4/2003	09:43	3.43	13.77
0523	4/4/2003	11:24	0.17	17.83
0530	4/4/2003	09:55	4.56	12.84
0533	4/4/2003	10:32	5.41	12.59
0534	4/4/2003	09:44	3.78	13.52
0535	4/4/2003	09:54	5.34	12.26
0536	4/4/2003	09:57	6.69	10.91

Table 2 (continued). Water-Level Data at the STAR Center

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
0537	4/4/2003	09:30	7.18	11.42
0538	4/4/2003	10:20	4.85	13.95
0557	4/4/2003	10:19	4.30	14.80
0559	4/4/2003	09:25	4.30	14.49
0560	4/4/2003	11:26	4.67	13.33
0561	4/4/2003	11:27	4.23	13.77
0562	4/4/2003	11:12	3.91	13.89
0563	4/4/2003	11:11	3.62	14.18
0564	4/4/2003	11:13	3.53	13.67
0565	4/4/2003	11:14	3.21	13.99
0566	4/4/2003	11:15	4.66	12.84
0567	4/4/2003	11:16	4.08	13.42
0568	4/4/2003	12:40	4.68	13.82
0569	4/4/2003	12:42	4.59	13.79
0570	4/4/2003	12:49	3.86	14.12
0571	4/4/2003	12:53	3.08	14.39
0572	4/4/2003	12:56	3.14	14.37
E001	4/4/2003	09:37	2.27	13.75
M03D	4/4/2003	11:20	0.06	18.04
M03S	4/4/2003	11:20	0.56	17.54
M12D	4/4/2003	09:48	3.37	13.83
M12S	4/4/2003	09:47	3.75	13.75
M14D	4/4/2003	11:07	2.97	15.03
M14S	4/4/2003	11:06	2.75	15.25
M16D	4/4/2003	10:17	3.31	14.89
M16S	4/4/2003	10:18	3.29	14.91
M17D	4/4/2003	10:33	4.87	12.73
M17S	4/4/2003	10:34	3.65	13.85
M24D	4/4/2003	11:08	4.07	13.73
M27D	4/4/2003	10:11	4.40	13.20
M27S	4/4/2003	10:11	3.85	13.75
M29D	4/4/2003	10:13	6.61	10.99
M29S	4/4/2003	10:13	4.65	12.95
M30D	4/4/2003	10:14	3.55	14.35
M30S	4/4/2003	10:15	3.25	14.55
M31D	4/4/2003	10:27	7.67	10.33
M31S	4/4/2003	10:26	7.01	10.99
M32D	4/4/2003	09:35	5.27	12.53
M32S	4/4/2003	09:34	4.80	13.00
M33D	4/4/2003	11:09	2.32	15.28
M34D	4/4/2003	10:31	8.50	9.60
M35D	4/4/2003	11:00	6.17	11.83
M36D	4/4/2003	10:36	6.50	11.30
M37D	4/4/2003	10:38	6.49	11.51

Table 2 (continued). Water-Level Data at the STAR Center

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
RW03	4/4/2003	10:46	34.60	-16.70
RW04	4/4/2003	10:50	7.49	10.11
RW06	4/4/2003	10:40	16.29	1.71
RW07	4/4/2003	10:07	7.71	9.89
RW10	4/4/2003	10:42	6.09	11.81
RW11	4/4/2003	10:44	7.10	10.90
RW12	4/4/2003	10:29	11.88	6.42
RW13	4/4/2003	10:11	10.93	6.67
RW14	4/4/2003	10:06	10.78	7.12
RW15	4/4/2003	10:09	19.68	-2.48
RW16	4/4/2003	09:32	24.69	-6.69
RW17	4/4/2003	10:21	26.22	-7.42
PIN18			**Wastewater Neutralization Area**	
0500	4/4/2003	13:04	6.03	14.07
0501	4/4/2003	13:05	6.00	14.00
0502	4/4/2003	13:06	5.22	14.78
0503	4/4/2003	12:44	3.19	14.49
0504	4/4/2003	13:08	3.87	15.73
0505	4/4/2003	12:42	3.63	14.25
0506	4/4/2003	11:12	3.45	14.26
0507	4/4/2003	12:43	3.24	14.49
0508	4/4/2003	13:07	3.76	15.74
0509	4/4/2003	12:41	3.59	14.24
0510	4/4/2003	11:13	3.56	14.20
0511	4/4/2003	12:56	2.54	16.26
0512	4/4/2003	12:56	2.34	16.26
0513	4/4/2003	12:57	2.49	16.31
0514	4/4/2003	12:50	3.08	14.70
0515	4/4/2003	12:51	3.95	14.46
0516	4/4/2003	12:52	4.04	14.37
0517	4/4/2003	11:15	4.01	14.24
0518	4/4/2003	11:16	4.01	14.19
0519	4/4/2003	11:15	4.08	14.20
0520	4/4/2003	13:15	4.08	13.92
0521	4/4/2003	13:15	4.79	13.31
0522	4/4/2003	13:15	4.84	13.26
0523	4/4/2003	13:13	5.00	14.40
0524	4/4/2003	13:13	4.72	14.28
0525	4/4/2003	13:14	4.40	14.50
0526	4/4/2003	12:53	2.59	16.01
RW02	4/4/2003	13:04	9.66	10.44
RW03	4/4/2003	13:14	9.56	8.74

Table 2 (continued). Water-Level Data at the STAR Center

Location	Measurement		Water Depth From Land Surface (ft)	Ground Water Elevation (ft NGVD)
	Date	Time		
PIN21			**Perimeter Monitoring Wells**	
0500	4/4/2003	08:01	4.51	13.59
0501	4/4/2003	08:07	4.58	13.42
0502	4/4/2003	08:26	2.07	13.13
0503	4/4/2003	08:25	2.19	13.01
0504	4/4/2003	10:56	4.29	13.31
0505	4/4/2003	10:57	4.04	13.36
0512	4/4/2003	08:52	4.05	13.25
PIN23			**Southwest Pond**	
SW01	4/4/2003	11:00		13.42
PIN37			**South Pond**	
S001	4/4/2003	11:03		13.40

Table 3. Floridan Aquifer Monitoring Well Water Elevations

Well Identification	Previous Water Level Elevation (ft, MSL)	Current Water Level Elevation (ft, MSL)
PIN15−0513	8.07	7.12
PIN12−0527	8.22	7.04
PIN12−0528	8.12	6.71

Table 4. Vertical Hydraulic Differential

Water Level Measured From	Well Identification	Water Level Elevation (ft, MSL)
Deep Surficial Aquifer	PIN15−M12D	13.83
Floridan Aquifer	PIN15−0513	7.12

Table 5. Surface Water Elevations

Pond Location	Previous Water Level Elevation (ft, MSL)	Current Water Level Elevation (ft, MSL)
East Pond	14.65	13.75
South Pond	14.32	13.40
West Pond	NM	NM
Southwest Pond	12.45[a]	13.42

[a]Questionable reading
NM = not measured

Table 6. Field Measurements of Samples Collected at the STAR Center

Location	Screen Depth (ft bls)	Temperature (°C)	Specific Conductance (µmhos/cm)[a]	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)
PIN06		**Old Drum Storage Site**					
0500	3-13	23.97	553	3.77	6.58	-68	0.31
0501	3-13	23.5	843	2.57	6.56	50	0.33
PIN09		**Incinerator Site**					
0500	3-13	24.82	767	0.78	6.78	-83	0.27
PIN10		**Incinerator Ditch**					
0500	3-13	22.45	562	48.6	6.47	-23	0.46
PIN12		**Industrial Drain Leaks Bldg 100**					
0508	3-13	22.38	386	1.49	6.44	87	0.5
0509	3-13	23.65	1,095	4.2	6.66	71.3	0.35
0510	3-13	23.95	994	19.7	5.95	97.8	0.32
0511	3-13	24.22	224	17.8	6.55	-9	2.47
0512	3-13	25.54	556	2.37	6.68	-74	0.35
0513	15-25	23.84	861	4.09	6.32	-189	0.1
0514	30-40	24.4	1,327	30.3	6.33	-85	0.5
0515	15-25	25.31	574	2.11	6.77	-104	0.23
0516	30-40	25.25	1,009	13.5	6.69	-94	0.24
0517	15-25	26.16	543	62.9	6.95	-107	0.25
0518	30-40	26.43	646	24.5	6.78	-59	0.31
0520	36-46	25.11	1,309	26	6.61	-16	0.3
0521	19.5-29.5	24.85	716	5.51	6.79	-99	0.33
0522	32-42	24.52	1,217	18.3	6.58	-2.8	0.3
0523	18-28	23.92	726	40.8	6.67	-75	0.24
0524	27-37	25.34	1,191	8.02	6.67	-69	0.41
0525	12-22	25.39	709	13.5	6.84	-90	0.31
0526	19.5-29.5	28.89	1,826	15.7	6.48	-69	0.84
0527	118-137.9	27.3	1,233	3.81	6.87	-99	0.88
0528	127-146.9	24.04	1,067	3.66	7.13	-268	0.25
S29C	14-24	23	963	10.7	6.75	-68.3	0.12
S30B	5-15	22.9	1,068	13.1	6.85	-8.8	0.17
S31B	5-15	23.8	559	18.5	6.65	31.8	0.24
S32B	5.5-15.5	22.7	1,078	4.3	6.73	19.5	0.2
S33C	11-21	22.5	1,192	107	6.77	-96.4	0.1
S35B	5-15	22.5	1,510	27.1	6.55	-28.4	0.23
S36B	5-15	23.6	579	31.7	6.46	-60	0.23
S37B	5-15	22.2	797	78.9	6.88	-90.4	0.12
S54D	36-41	22.8	1,264	13.5	6.69	-104.7	0.16
S55B	10-19.8	23.3	467	9.14	6.72	-133.3	0.12
S55C	20.5-30.3	23.4	629	14.7	7.31	-187.8	0.1
S56C	20.5-30.3	22.7	1,319	100	7.72	-177.5	0.07
S56D	31-40.8	22.7	1,417	99.1	7.7	-134.1	0.1
S57B	10-19.8	23.1	1,137	57.9	7.46	-128.7	--
S57C	20.5-30.3	23	927	19.6	6.91	-164.7	0.1

Table 6 (continued). Field Measurements of Samples Collected at the STAR Center

Location	Screen Depth (ft bls)	Temperature (°C)	Specific Conductance (µmhos/cm)[a]	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)
S57D	31.5-41.3	23	1,275	9.24	7.29	-117.9	0.12
S59B	10-19.8	21.38	784	357	8.22	-114	3.5
S59C	20.5-30.3	21.21	837	17.2	9.11	30	1.04
S59D	31-40.8	21.33	769	21	8.73	-14	0.57
S60B	10-19.8	21.55	617	34.3	7.35	-191	1.79
S60C	20.5-30.3	21.9	772	28.2	8.22	-35	4.7
S60D	31-40.8	21.88	673	23.7	8.38	198	0.84
S67B	10-19.83	21.86	1,113	>1,000	6.52	-54	1.03
S67C	20-29.83	22.29	1,042	110	6.41	-64	0.61
S67D	30-39.83	22.29	1,176	168	6.47	-64	0.81
S68B	10-20	21.89	846	11.7	6.46	-63	0.5
S68C	18-28	23.91	890	595	6.38	-39	0.52
S68D	30-40	24.33	1,221	11.9	6.34	-39	0.39
S69B	10-20	25.64	652	49.1	6.4	-64	0.31
S69C	20-30	26.16	875	505	6.52	-72	0.25
S69D	30-40	25.74	1,411	11.8	6.46	-50	0.4
S70B	10-20	25.58	1,652	119	6.1	-3.8	0.57
S70C	20-30	26.99	1,396	538	6.38	-64	0.33
S70D	30-40	26.5	1,389	141	6.38	-60.9	0.35
S71B	10-20	26.57	1,308	126	6.48	-81	0.68
S71C	20-30	28.29	1,433	514	6.43	-72	0.84
S71D	30-40	27.57	1,288	393	6.5	-67	0.41
S72B	10-20	25.2	1,530	33.7	6.25	-41.3	1.8
S72C	20-30	25.98	123	8.8	6.63	-77	2.88
S72D	30-40	26.9	1,296	>1,000	6.53	-21.9	8.78
S73B	10-20	26.74	857	433	6.63	-80	0.37
S73C	20-30	27.9	1,402	142	6.56	-59	0.39
S73D	30-40	28.2	1,320	>1,000	6.59	-71	0.32
TE03	-	25.57	729	5.97	6.83	-61	0.64
PIN15		**Northeast Site**					
0506	12-21.5	23.3	1,039	5.06	6.62	-41	2.8
0507	5-14.5	23.49	401	206	6.86	-82	1.21
0510	4-13.5	26.36	586	6.92	6.78	-66	0.36
0513	135-149.6	23.82	1,100	0.48	6.68	-158	--
0514	15.5-25.5	22.65	1,608	2.67	6.7	1	0.3
0515	7.6-17.6	21.62	683	1.18	6.96	-32	0.42
0516	0.3-10.3	21.76	864	5.4	6.85	56	2.02
0518	23-28	22.84	1,058	16.3	6.28	-27	--
0520	5-14.5	22.73	349	11.4	6.13	-28	0.4
0523	5-14.5	23.55	828	19.9	6.52	-5	1.1
0530	5-14.5	21.31	612	7.41	6.89	-48	0.37
0533	19.5-29.5	24.3	980	64.2	6.65	-58	0.28
0534	19.5-29	23.56	1,349	19.9	6.46	-59	0.38

Table 6 (continued). Field Measurements of Samples Collected at the STAR Center

Location	Screen Depth (ft bls)	Temperature (°C)	Specific Conductance (µmhos/cm)[a]	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)
0535	20.5-30	22.85	1,645	>999	6.66	-48	0.26
0536	17.5-27	23.96	1,548	177	6.5	-46	0.31
0537	17.5-30	22.84	805	1.38	6.65	-58	--
0538	19.5-29	20.36	854	8.28	6.44	-74	--
0557	21-31	21.12	842	84	6.68	-49	--
0559	22-31.5	27.32	1,132	13	6.6	10	0.32
0568	10-20	24.22	1,130	16.6	6.58	-67	0.4
0569	20-30	25.29	1,287	162	6.53	-76.2	0.38
0570	20-30	28.18	1,732	34.8	6.48	-29	0.37
0571	10-20	26.09	1,004	380	6.85	-97	0.27
0572	20-30	27.07	1,350	345	6.69	-58	0.36
M03D	15-25	23.61	1,212	4.32	6.22	-52	0.33
M03S	2.5-12	23.03	613	9.91	6.49	42	0.6
M12D	22.5-32.5	22.71	691	75.7	6.48	-83	--
M12S	5-14.5	21.47	295	207	6.6	110	--
M14D	18.5-28.5	24.63	834	159	6.36	-51	0.26
M14S	4-14	25.53	723	81.8	6.71	98	0.76
M16D	18.5-28.5	22.9	661	15.9	6.65	-81	--
M16S	5-14.5	22.36	493	19.6	6.78	4	--
M17D	19.5-29.5	23.61	855	2.87	6.29	-218	3.26
M17S	5-14.5	22.93	643	2.78	6.83	127	1.55
M24D	20-30	23.73	1,068	305	6.55	-36	0.34
M27D	21-31	21.82	1,144	19.3	6.25	-12	--
M27S	6-16	21.56	551	3.42	6.71	65	--
M29D	20-30	23.97	466	2.05	6.57	-25	0.32
M29S	5-15	22.5	807	19.6	6.75	90	1.03
M30D	20.5-30.5	23.28	921	7.55	6.44	-52	--
M30S	5.5-15.5	22.96	654	19.9	6.76	4	--
M31D	19.5-29.5	24.51	1,260	12.4	6.61	-29	0.43
M31S	4.5-14.5	23.86	1,287	4.9	6.76	-35.4	0.37
M32D	14-24	22.17	648	13.2	6.78	-58	--
M32S	3-13	21.91	473	14.7	6.93	54	--
M33D	20-30	25.53	640	227	6.61	-70.1	0.25
M34D	20-30	24.47	1,211	2.24	6.53	-24	0.34
M35D	20-30	23.49	2,148	3.2	5.67	-95	0.71
M36D	20-30	23.19	1,652	2.99	6.17	-95	0.5
M37D	20-30	24.26	1,866	3.3	6.04	-20	0.46
PIN18		**Wastewater Neutralization Area**					
0500	11-16	23.17	381	16	7.11	-119	0.33
0501	11-16	23.16	619	19.8	6.75	-107	0.29
0502	11-16	23.09	701	11.4	6.63	-50	0.35
0503	10-20	27.34	752	17.6	6.63	-97	1.14
0504	13-22	23.41	438	9.21	6.92	-60	6.29

Table 6 (continued). Field Measurements of Samples Collected at the STAR Center

Location	Screen Depth (ft bls)	Temperature (°C)	Specific Conductance (µmhos/cm)[a]	Turbidity (NTU)	pH	Oxidation Reduction Potential (mV)	Dissolved Oxygen (mg/L)
0505	10.5-20.5	25.48	546	7.7	6.82	34	0.51
0506	12-22	25.4	469	2.59	6.89	-78	0.5
0507	27-37	27.52	1,191	21.9	6.76	-35	1.47
0508	31-41	24.78	857	9.66	6.71	-87	0.27
0509	27.5-37.5	26.21	1,072	3.25	6.78	-15	0.67
0510	27.5-37.5	26.05	1,084	19.8	6.77	-48	0.64
0511	32-42	25.31	715	3.31	6.74	-105	0.82
0512	21-31	25.63	908	1.68	6.6	-75	1.23
0513	12-22	25.35	676	6.23	6.47	-50	1.07
0514	32.5-42.5	26.94	1,332	23.7	6.74	-45	0.32
0515	22.5-32.5	26.62	1,147	1.95	6.54	-108	0.47
0516	12.5-22	25.96	1,132	5.75	6.55	-95	0.36
0517	31.5-41.5	25.91	1,199	2.77	6.86	3	0.62
0518	22.5-32.5	26.08	1,113	2.61	6.74	-74	0.61
0519	12.5-22.5	25.67	773	18.9	6.83	-79	0.56
0520	32.5-42.5	24.65	1,303	38.6	6.84	-43	0.27
0521	20-30	24.38	821	6	6.77	-90	0.26
0522	5-15	23.13	458	15.8	6.76	1.1	1.15
0523	32.5-42.5	24.89	989	28.8	6.78	-56	0.24
0524	20-30	24.49	581	18.7	6.77	-109	0.27
0525	5-15	23.72	289	33.6	6.66	49	1.62
0526	19.5-29	23.87	528	101	6.32	-79	0.24
PIN21		**Perimeter Monitoring Wells**					
0500	7-17	24.31	483	49.1	6.76	-44	--
0501	20-28	25.77	1,291	6.53	6.64	-64	0.46
0502	7-17	23.01	685	19.4	6.37	-24	0.53
0503	20-28	24.08	795	28.1	6.44	-73	0.24
0504	7-17	21.47	573	7.92	6.78	6.6	0.41
0505	20-28	22.87	863	10	6.65	-27	0.4
0512	20-29.5	23.23	861	33.6	6.4	-73	0.24

[a]Temperature corrected to 25°C.
-- = Not Measured.

Table 7. COPC Concentrations at the Northeast Site
(reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Methylene chloride	Benzene	Toluene	Total COPC[b]
FDEP MCL			**3**	**70**	**63**	**1**	**5**	**1**	**1000**	
PIN15			**Northeast Site**							
0506	12-21.5	4/17/2002	<1	0.14J	0.14J	<1	<5	<1	<1	ND
		10/12/2002	<1	<1	ND	<1	<5	<1	<1	ND
		4/10/2003	<1	<1	ND	<1	<5	<1	<1	ND
0507	5-14.5	4/17/2002	<1	0.15J	0.15J	0.24J	0.37J	<1	<1	ND
		10/12/2002	<1	<1	ND	<1	0.3J	<1	<1	ND
		4/10/2003	<1	<1	ND	<1	<5	<1	<1	ND
0510	4-13.5	4/17/2002	<1	<1	ND	<1	<5	<1	<1	ND
		4/15/2003	<1	<1	ND	<1	0.3JB	<1	<1	ND
0513	130-150	4/18/2002	<1	<1	ND	<1	<5	<1	<1	ND
	135-149.6	4/10/2003	<1	<1	ND	<1	0.66J	<1	<1	ND
0514	15.5-25.5	4/17/2002	<1	<1	ND	<1	1.4J	<1	<1	ND
		7/12/2002	<1	<1	ND	<1	0.47JB	<1	<1	ND
		10/13/2002	<1	<1	ND	<1	0.4JB	4.5	0.34J	4.5
		4/14/2003	<1	<1	ND	<1	<5	4.3	0.36J	4.3
0515	7.6-17.6	4/17/2002	<1	<1	ND	<1	1J	<1	<1	ND
		7/12/2002	<1	<1	ND	<1	0.34JB	<1	<1	ND
		10/13/2002	<1	<1	ND	<1	0.62JB	<1	<1	ND
		4/14/2003	<1	<1	ND	<1	0.3JB	<1	<1	ND
0516	0.3-10.3	4/17/2002	<1	<1	ND	<1	<5	<1	<1	ND
		7/12/2002	<1	<1	ND	<1	0.35JB	<1	<1	ND
		10/13/2002	<1	<1	ND	<1	0.77JB	<1	<1	ND
		4/14/2003	<1	<1	ND	<1	0.3JB	<1	<1	ND
0518	23-28	4/18/2002	<1	<1	ND	<1	<5	<1	<1	ND
		4/10/2003	<1	<1	ND	<1	<5	<1	<1	ND
0520	5-14.5	4/17/2002	<1	<1	ND	<1	<5	<1	<1	ND
		10/12/2002	<1	<1	ND	<1	0.31J	<1	<1	ND
		4/10/2003	<1	<1	ND	<1	<5	<1	<1	ND
0523	5-14.5	4/18/2002	<1	<1	ND	<1	<5	<1	<1	ND
		4/15/2003	<1	<1	ND	<1	<5	<1	<1	ND
0530	5-14.5	4/17/2002	<1	<1	ND	<1	<5	<1	<1	ND
		7/12/2002	<1	<1	ND	<1	<5	<1	<1	ND
		10/13/2002	<1	<1	ND	<1	0.73JB	<1	<1	ND
		1/10/2003	0.95J	<1	ND	<1	<5	<1	0.4J	ND
		4/14/2003	<1	<1	ND	<1	0.42JB	<1	0.13J	ND
0533	19.5-29.5	4/19/2002	7,800	16,000	16,000	560	140J	<250	<250	24,360
		4/14/2003	910	5,700	5,700	420	<100	<100	<100	7,030
0534	19.5-29	4/17/2002	<1	0.19J	0.19J	<1	<5	<1	<1	ND
		10/12/2002	<1	<1	ND	<1	<5	<1	<1	ND
		4/10/2003	<1	<1	ND	<1	0.57J	<1	<1	ND

Table 7 (continued). COPC Concentrations at the Northeast Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Methylene chloride	Benzene	Toluene	Total COPC[b]
FDEP MCL			**3**	**70**	**63**	**1**	**5**	**1**	**1000**	
0535	20.5-30	4/17/2002	<1	<1	ND	<1	<5	2	0.88J	2
		7/12/2002	<1	<1	ND	<1	<5	1.9	0.66J	1.9
		10/13/2002	<1	<1	ND	<1	1.4JB	1.5	0.27J	1.5
		1/10/2003	<1	7.2	7.2	11	<5	1.2	0.59J	19.4
		4/14/2003	<1	<1	ND	<1	<5	2.1	0.2J	2.1
0536	17.5-27	4/19/2002	110,000	15,000	15,000	560J	<5,000	<1,000	<1,000	125,000
		7/12/2002	69,000	5,700	5,700	<2,500	1,600JB	<2,500	<2,500	74,700
		10/14/2002	110,000	5,800	5,800	<2,500	2,500JB	<2,500	<2,500	115,800
		1/10/2003	71,000	3,500	3,500	<2,500	<12,000	<2,500	<2,500	74,500
		4/14/2003	130,000	2,000J	2,000J	<2,500	8,600JB	<2,500	<2,500	130,000
0537	17.5-30	4/18/2002	21J	3,600	3,600	1,800	16J	<50	<50	5,400
		7/11/2002	<100	11,000	11,000	4,800	<500	14J	130	15,930
		10/14/2002	<250	5,600	5,600	860	<1,200	<250	<250	6,460
		1/9/2003	87	2,100	2,100	1,900	<250	<50	<50	4,087
		4/11/2003	<250	6,600	6,600	1,600	<1,200	<250	<250	8,200
0538	19.5-29	4/18/2002	<250	2,500	2,500	24,000	<1,200	<250	550	27,050
		7/12/2002	<250	970	970	20,000	<1,200	44J	550	21,520
		10/14/2002	<250	2,000	2,000	24,000	<1,200	25J	540	26,540
		1/9/2003	<1,000	1,200	1,200	33,000	<5,000	<1,000	930J	34,200
		4/11/2003	<250	240J	240J	30,000	<1,200	<250	65J	30,000
0557	21-31	4/18/2002	<1	<1	ND	3	<5	<1	<1	3
		10/14/2002	<1	<1	ND	3.6	0.54J	<1	<1	3.6
		4/11/2003	<1	<1	ND	3.9	<5	<1	<1	3.9
0559	22-31.5	4/17/2002	<1	<1	ND	<1	<5	<1	<1	ND
		7/11/2002	<1	0.5J	0.5J	<1	<5	0.31J	<1	ND
		10/12/2002	<1	<1	ND	<1	<5	<1	<1	ND
		1/10/2003	<1	<1	ND	<1	<5	11	0.41J	11
		4/15/2003	<1	<1	ND	<1	2.6J	<1	<1	ND
0568	10-20	4/15/2003	<1	<1	ND	<1	2.2J	<1	<1	ND
0569	20-30	4/15/2003	<1	0.28J	0.28J	36	0.5J	4.1	0.54J	40.1
0570	20-30	4/15/2003	<1	<1	ND	<1	3.1JB	<1	<1	ND
0571	10-20	4/16/2003	<1	<1	ND	<1	<5	<1	<1	ND
0572	20-30	4/16/2003	<1	<1	ND	<1	<5	<1	<1	ND
M03D	15-25	4/18/2002	<1	<1	ND	0.61J	<5	<1	<1	ND
		10/15/2002	<1	<1	ND	0.42J	0.92JB	<1	<1	ND
		4/15/2003	<1	<1	ND	0.4J	0.85JB	<1	<1	ND
M03S	2.5-12	4/18/2002	<1	<1	ND	<1	<5	<1	<1	ND
		10/15/2002	<1	<1	ND	<1	0.85JB	<1	<1	ND
		4/15/2003	<1	<1	ND	<1	0.33JB	<1	<1	ND
M12D	22.5-32.5	4/18/2002	<1	<1	ND	<1	<5	<1	<1	ND
		4/10/2003	<1	<1	ND	<1	0.39J	<1	<1	ND
M12S	5-14.5	4/18/2002	<1	<1	ND	<1	<5	<1	<1	ND
		4/10/2003	<1	<1	ND	<1	0.58J	<1	<1	ND

Table 7 (continued). COPC Concentrations at the Northeast Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Methylene chloride	Benzene	Toluene	Total COPC[b]
FDEP MCL			**3**	**70**	**63**	**1**	**5**	**1**	**1000**	
M14D	18.5-28.5	4/17/2002	<1	<1	ND	0.91J	<5	<1	<1	ND
		4/15/2003	<1	<1	ND	<1	0.55JB	<1	<1	ND
M14S	4-14	4/17/2002	<1	<1	ND	<1	<5	<1	<1	ND
		4/15/2003	<1	<1	ND	<1	0.32JB	<1	<1	ND
M16D	18.5-28.5	4/18/2002	<1	<1	ND	<1	<5	<1	<1	ND
		4/11/2003	<1	<1	ND	<1	<5	<1	<1	ND
M16S	5-14.5	4/18/2002	<1	<1	ND	<1	<5	<1	<1	ND
		4/11/2003	<1	<1	ND	<1	<5	<1	<1	ND
M17D	19.5-29.5	4/18/2002	21,000	140,000	140,000	3,800	65,000	<2,500	62,000	291,800
		4/11/2003	39,000	100,000	100,000	3,100	2,100JB	390J	54,000	196,100
M17S	5-14.5	4/18/2002	10	7.1	7.1	0.61J	1.2J	<1	28	45.1
		4/11/2003	<1	<1	ND	<1	<5	<1	<1	ND
M24D	20-30	4/18/2002	<1	<1	ND	<1	<5	<1	<1	ND
		4/15/2003	<1	<1	ND	<1	<5	<1	<1	ND
M27D	21-31	4/17/2002	<1	<1	ND	<1	<5	21	2.2	23.2
		7/12/2002	<1	<1	ND	<1	<5	18	1.8	19.8
		10/13/2002	<1	<1	ND	<1	1.4JB	23	2.4	25.4
		1/10/2003	<1	0.15J	0.15J	1.2	<5	16	1	18.2
		4/10/2003	<1	<1	ND	<1	0.43J	6	<1	6
M27S	6-16	4/17/2002	<1	<1	ND	<1	<5	<1	<1	ND
		7/12/2002	<1	<1	ND	<1	<5	<1	<1	ND
		10/13/2002	<1	<1	ND	<1	0.69JB	0.18J	<1	ND
		1/10/2003	<1	<1	ND	<1	<5	<1	<1	ND
		4/10/2003	<1	<1	ND	<1	<5	<1	<1	ND
M29D	20-30	4/17/2002	<1	<1	ND	<1	0.9J	0.9J	<1	ND
		7/12/2002	<1	<1	ND	<1	0.37JB	<1	<1	ND
		10/14/2002	<1	<1	ND	<1	1.1JB	0.36J	<1	ND
		4/14/2003	<1	<1	ND	<1	4.2JB	0.15J	<1	ND
M29S	5-15	4/17/2002	<1	<1	ND	<1	1.3J	<1	<1	ND
		7/12/2002	<1	<1	ND	<1	0.39JB	<1	<1	ND
		10/14/2002	<1	<1	ND	<1	0.78JB	<1	<1	ND
		4/14/2003	<1	<1	ND	<1	5.5B	<1	0.42J	5.5
M30D	20.5-30.5	4/18/2002	<1	<1	ND	2.2	0.87J	<1	<1	2.2
		10/14/2002	<10	71	71	380	4.7J	<10	<10	451
		4/11/2003	<1	2.4	2.4	32	0.41J	0.53J	<1	34.4
M30S	5.5-15.5	4/18/2002	<2.5	3.8	3.8	41	<12	<2.5	<2.5	44.8
		10/14/2002	<1	<1	ND	0.58J	0.51J	<1	<1	ND
		4/11/2003	<1	<1	ND	<1	<5	<1	<1	ND
M31D	19.5-29.5	4/19/2002	<5	180	180	520	<25	11	4.4J	711
		7/12/2002	<5	10	10	280	<25	13	<5	303
		10/14/2002	<1	<1	ND	54	1.7J	15	0.93J	69
		1/9/2003	<1	0.65J	0.65J	25	0.47J	8.8	0.65J	33.8
		4/14/2003	<1	<1	ND	0.21J	0.62J	0.13J	<1	ND

Table 7 (continued). COPC Concentrations at the Northeast Site (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Methylene chloride	Benzene	Toluene	Total COPC[b]
FDEP MCL			**3**	**70**	**63**	**1**	**5**	**1**	**1000**	
M31S	4.5-14.5	4/19/2002	<1	0.32J	0.32J	8.7	<5	3.2	<1	11.9
		7/12/2002	<1	<1	ND	<1	0.64JB	<1	<1	ND
		10/14/2002	<1	110	110	71	0.91JB	4.3	<1	185.3
		1/9/2003	<1	<1	ND	<1	<5	<1	<1	ND
		4/14/2003	<1	<1	ND	<1	0.34J	<1	<1	ND
M32D	14-24	4/17/2002	<1	<1	2.2	<1	<5	3.1	<1	5.3
		7/11/2002	<1	<1	ND	<1	<5	<1	<1	ND
		10/14/2002	<1	<1	ND	0.27J	<5	<1	<1	ND
		1/9/2003	<1	<1	ND	<1	<5	<1	<1	ND
		4/10/2003	<1	<1	ND	<1	<5	<1	<1	ND
M32S	3-13	4/17/2002	<1	<1	ND	<1	1.2J	<1	<1	ND
		7/11/2002	<1	<1	ND	<1	<5	<1	<1	ND
		10/14/2002	<1	<1	ND	<1	<5	<1	<1	ND
		1/9/2003	<1	<1	ND	<1	<5	<1	<1	ND
		4/10/2003	<1	<1	ND	<1	<5	<1	<1	ND
M33D	20-30	4/18/2002	<1	<1	ND	<1	0.35J	<1	<1	ND
		4/15/2003	<1	<1	ND	<1	0.85JB	<1	<1	ND
M34D	20-30	4/19/2002	<500	15,000	15,000	14,000	1,000J	<500	3,400	32,400
		7/12/2002	<2,500	39,000	39,000	21,000	930JB	<2,500	30,000	90,000
		10/14/2002	<2,500	4,300	4,300	21,000	4,000J	380J	6,400	31,700
		4/14/2003	<50	1,400	1,400	2,200	60J	6.1J	<50	3,600
M35D	20-30	4/19/2002	440,000	310,000	310,000	<100,000	9,000,000	<100,000	170,000	9,920,000
		4/11/2003	11,000	48,000	48,000	1,800	910,000	<25,000	77,000	1,047,800
M36D	20-30	4/19/2002	<250	11,000	11,000	15,000	<1,200	210J	25,000	51,000
		4/11/2003	<25	<25	ND	200	120JB	72	<25	272
RW03	10.5-30.5	1/9/2003	26,000	38,000	38,000	4,000J	130,000	<5,000	25,000	219,000
		4/11/2003	11,000	51,000	51,000	2,600	130,000B	<2,500	14,000	208,600
RW06	11-31	4/17/2002	24,000J	42,000	42,000	<25,000	570,000	<25,000	94,000	706,000
		7/14/2002	12,000	48,000	48,000	4,600	120,000	410J	22,000	206,600
		10/15/2002	26,000	110,000	110,000	16,000	170,000	540J	66,000	388,000
		1/9/2003	12,000	65,000	65,000	4,100	75,000	<2,500	39,000	195,100
		4/11/2003	10,000	76,000	76,000	6,300	71,000B	190J	30,000	193,300
RW12	14-29	4/17/2002	59J	7,800	7,800	6,200	460J	<250	2,300	16,300
		7/14/2002	310	8,300	8,300	5,100	700J	40J	2,900	16,610
		10/15/2002	130J	5,800	5,800	8,800	660J	34J	1,500	16,100
		1/9/2003	390	5,600	5,600	7,900	220JB	<250	870	14,760
		4/14/2003	320	6,500	6,500	7,900	52JB	21J	600	15,320
RW13	9-29	4/17/2002	<25	110	110	<25	910	23J	120	1,140
		7/14/2002	<10	150	150	99	960	12	87	1,308
		10/15/2002	2.5J	130	130	94	270	14	81	589
		1/9/2003	2.1J	110	110	75	340	9.5	88	622.5
		4/14/2003	1.2J	120	120	250	220B	11	82	683

Table 7 (continued). COPC Concentrations at the Northeast Site
(reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	Total 1,2-DCE[a]	Vinyl chloride	Methylene chloride	Benzene	Toluene	Total COPC[b]
FDEP MCL			**3**	**70**	**63**	**1**	**5**	**1**	**1000**	
RW14	8-28	4/17/2002	180	3,000	3,000	4,900	730	27J	310	9,120
		7/14/2002	480	1,500	1,500	2,300	680	14J	200	5,160
		10/15/2002	520	2,500	2,500	3,900	290	18J	180	7,390
		1/9/2003	210	930	930	950	130	<25	100	2,320
		4/14/2003	900	3,700	3,700	3,600	<500	18J	80J	8,200
RW15	14.5-29.5	4/17/2002	1,800	1,300	1,300	590	<120	<25	<25	3,690
		7/14/2002	1,600	1,200	1,200	220	<120	9.8J	140	3,160
		10/15/2002	1,900	1,500	1,500	1,400	<120	8.2J	<25	4,800
		1/9/2003	2,500	1,400	1,400	210	<250	<50	<50	4,110
		4/14/2003	3,600	1,700	1,700	100	250JB	10J	9.4J	5,400
RW16	20-30	4/17/2002	<50	27J	27J	1,200	<250	<50	<50	1,200
		7/14/2002	<50	790	790	1,800	<250	8.6J	<50	2,590
		10/15/2002	<50	810	810	2,200	93J	8.8J	<50	3,010
		1/9/2003	<50	330	330	2,900	<250	<50	<50	3,230
		4/14/2003	<25	840	840	1,200	12J	2.8J	<25	2,040
RW17	19.5-29.5	4/17/2002	<1	110	110	51	<5	<1	3.4	164.4
		7/14/2002	<1,000	72,000	72,000	22,000	<5,000	<1,000	2,000	96,000
		10/15/2002	<1,000	64,000	64,000	28,000	1,200JB	<1,000	1,500	93,500
		1/9/2003	<2,500	58,000	58,000	15,000	<12,000	<2,500	<2,500	73,000
		4/14/2003	<1,000	65,000	65,000	18,000	5,200	<1,000	980J	88,200

[a]Total 1,2-DCE is the sum of cis-1,2-DCE and trans-1,2-DCE.
[b]Total COPC is the sum of the individual COPC concentrations. The cis-1,2-DCE value is not part of the total COPC value because this value is included in the total 1,2-DCE value. "J" values are not included in the total COPC value.

ND = Not detected
J = Estimated value, result is between the reporting limit and the method detection limit.
B = Analyte also found in method blank.

Table 8. Arsenic, Chromium, and Lead in Samples Collected at the STAR Center (reported in milligrams per liter)

Location	Screen Depth (ft bls)	Date Sampled	Arsenic	Chromium	Lead
PIN06			**Old Drum Storage Site**		
0500	3-13	4/15/2003	0.022	--	--
0501	3-13	4/15/2003	0.0089J	--	--
PIN09			**Incinerator Site**		
0500	3-13	4/15/2003	0.018	--	--
PIN10			**Incinerator Ditch**		
0500	3-13	4/15/2003	0.018	--	--
PIN12			**Industrial Drain Leaks Bldg 100**		
0508	3-13	4/15/2003	<0.01	--	--
0509	3-13	4/15/2003	<0.01	--	--
0510	3-13	4/15/2003	<0.01	--	--
0511	3-13	4/11/2003	<0.01	--	--
0512	3-13	4/12/2003	0.0061J	--	--
0513	15-25	4/9/2003	<0.01	--	<0.005
0514	30-40	4/9/2003	0.0032J	--	0.0066
0515	15-25	4/12/2003	0.0035J	--	--
0516	30-40	4/12/2003	<0.01	--	--
0517	15-25	4/12/2003	0.0051J	--	--
0518	30-40	4/12/2003	<0.01	--	--
0520	36-46	4/15/2003	<0.01	--	--
0521	19.5-29.5	4/15/2003	<0.01	--	--
0522	32-42	4/15/2003	<0.01	--	--
0523	18-28	4/15/2003	<0.01	--	--
0524	27-37	4/12/2003	0.004J	--	--
0525	12-22	4/12/2003	0.037	--	--
0526	19.5-29.5	4/9/2003	<0.01	--	--
RW01	19-29	4/7/2003	0.0047J	0.012	0.0035J
RW02	25-35	4/7/2003	0.0035J	<0.01	0.002J
S29C	14-24	5/9/2003	<0.01	--	--
S30B	5-15	5/9/2003	0.0055J	--	--
S31B	5-15	5/8/2003	0.024	--	--
S32B	5.5-15.5	5/9/2003	0.041	--	--
S33C	11-21	5/9/2003	0.014	--	--
S35B	5-15	5/9/2003	0.014	--	--
S36B	5-15	5/8/2003	0.0066J	--	--
S37B	5-15	5/9/2003	0.011	--	--
S54D	36-41	5/12/2003	0.0034J	--	--
S55B	10-19.8	5/12/2003	<0.01	--	--
S55C	20.5-30.3	5/12/2003	0.0071J	--	--
S56B	10-19.8	5/12/2003	0.0076J	--	--
S56C	20.5-30.3	5/12/2003	<0.01	--	--
S56D	31-40.8	5/12/2003	<0.01	--	--
S57B	10-19.8	5/12/2003	<0.01	--	--

Table 8 (continued). Arsenic, Chromium, and Lead in Samples Collected at the STAR Center (reported in milligrams per liter

Location	Screen Depth (ft bls)	Date Sampled	Arsenic	Chromium	Lead
S57C	20.5-30.3	5/12/2003	0.004J	--	--
S57D	31.5-41.3	5/12/2003	<0.01	--	--
S59B	10-19.8	4/9/2003	<0.01	--	<0.005
S59C	20.5-30.3	4/9/2003	<0.01	--	<0.005
S59D	31-40.8	4/8/2003	<0.01	--	<0.005
S60B	10-19.8	4/9/2003	<0.01	--	<0.005
S60C	20.5-30.3	4/9/2003	0.0049J	--	<0.005
S60D	31-40.8	4/9/2003	<0.01	--	<0.005
S67B	10-19.83	4/9/2003	<0.01	--	0.0075
S67C	20-29.83	4/9/2003	<0.01	--	0.0053
S67D	30-39.83	4/9/2003	<0.01	--	0.0069
S68B	10-20	4/11/2003	0.065	--	--
S68C	18-28	4/11/2003	0.0037J	--	--
S68D	30-40	4/11/2003	<0.01	--	--
S69B	10-20	4/10/2003	0.0095J	--	--
S69C	20-30	4/10/2003	<0.01	--	--
S69D	30-40	4/10/2003	<0.01	--	--
S70B	10-20	4/10/2003	<0.01	--	--
S70C	20-30	4/10/2003	<0.01	--	--
S70D	30-40	4/10/2003	<0.01	--	--
S71B	10-20	4/9/2003	0.0069J	--	--
S71C	20-30	4/9/2003	0.0054J	--	--
S71D	30-40	4/9/2003	0.0056J	--	--
S72B	10-20	4/10/2003	0.0077J	--	--
S72C	20-30	4/10/2003	0.0048J	--	--
S72D	30-40	4/10/2003	0.0075J	--	--
S73B	10-20	4/9/2003	0.012	--	--
S73C	20-30	4/9/2003	0.0061J	--	--
S73D	30-40	4/9/2003	0.025	--	--
TE03	-	4/12/2003	<0.01	<0.01	--
PIN15			**Northeast Site**		
0506	12-21.5	4/10/2003	0.0052J	--	--
0507	5-14.5	4/10/2003	<0.01	--	--
0510	4-13.5	4/15/2003	0.0036J	--	--
0514	15.5-25.5	4/14/2003	<0.01	--	--
0515	7.6-17.6	4/14/2003	<0.01	--	--
0516	0.3-10.3	4/14/2003	0.0066J	--	--
0520	5-14.5	4/10/2003	0.0045J	--	<0.005
0523	5-14.5	4/15/2003	0.0055J	--	--
0530	5-14.5	4/14/2003	0.0064J	--	--
0533	19.5-29.5	4/14/2003	<0.01	--	--
0534	19.5-29	4/10/2003	<0.01	--	0.0063
0535	20.5-30	4/14/2003	0.0092J	--	--

Table 8 (continued). Arsenic, Chromium, and Lead in Samples Collected at the STAR Center (reported in milligrams per liter)

Location	Screen Depth (ft bls)	Date Sampled	Arsenic	Chromium	Lead
0536	17.5-27	4/14/2003	0.0087J	--	--
0537	17.5-30	4/11/2003	<0.01	--	--
0538	19.5-29	4/11/2003	0.0058J	--	--
0557	21-31	4/11/2003	<0.01	--	--
0559	22-31.5	4/15/2003	<0.01	--	--
0568	10-20	4/15/2003	<0.01	--	--
0569	20-30	4/15/2003	<0.01	--	--
0570	20-30	4/15/2003	0.0043J	--	--
0571	10-20	4/16/2003	0.0063J	--	--
0572	20-30	4/16/2003	<0.01	--	--
M03D	15-25	4/15/2003	<0.01	--	--
M03S	2.5-12	4/15/2003	<0.01	--	--
M12D	22.5-32.5	4/10/2003	<0.01	--	0.0035J
M12S	5-14.5	4/10/2003	<0.01	--	0.0075
M14D	18.5-28.5	4/15/2003	0.0032J	--	--
M14S	4-14	4/15/2003	0.041	--	--
M16D	18.5-28.5	4/11/2003	0.0036J	--	--
M16S	5-14.5	4/11/2003	0.0052J	--	--
M17D	19.5-29.5	4/11/2003	<0.01	--	--
M17S	5-14.5	4/11/2003	0.0068J	--	--
M24D	20-30	4/15/2003	<0.01	--	--
M27D	21-31	4/10/2003	<0.01	--	--
M27S	6-16	4/10/2003	<0.01	--	--
M29D	20-30	4/14/2003	0.0043J	--	--
M29S	5-15	4/14/2003	0.012	--	--
M30D	20.5-30.5	4/11/2003	0.0085J	--	--
M30S	5.5-15.5	4/11/2003	0.0081J	--	--
M31D	19.5-29.5	4/14/2003	<0.01	--	--
M31S	4.5-14.5	4/14/2003	<0.01	--	--
M32D	14-24	4/10/2003	<0.01	--	--
M32S	3-13	4/10/2003	0.019	--	--
M33D	20-30	4/15/2003	<0.01	--	--
M34D	20-30	4/14/2003	<0.01	--	--
M35D	20-30	4/11/2003	0.025	--	--
M36D	20-30	4/11/2003	0.0059J	--	--
M37D	20-30	4/14/2003	<0.01	--	--
PIN18			**Wastewater Neutralization Area**		
0500	11-16	4/14/2003	0.11	<0.01	--
0501	11-16	4/14/2003	0.3	<0.01	--
0502	11-16	4/14/2003	0.053	0.0021J	--
0503	10-20	4/12/2003	0.0042J	<0.01	--
0504	13-22	4/14/2003	0.005J	0.0019J	--
0505	10.5-20.5	4/12/2003	0.0068J	0.0029J	--

Table 8 (continued). Arsenic, Chromium, and Lead in Samples Collected at the STAR Center (reported in milligrams per liter

Location	Screen Depth (ft bls)	Date Sampled	Arsenic	Chromium	Lead
0506	12-22	4/12/2003	0.0039J	<0.01	--
0507	27-37	4/12/2003	0.0055J	0.0041J	--
0508	31-41	4/14/2003	0.005J	0.0021J	--
0509	27.5-37.5	4/12/2003	0.0055J	<0.01	--
0510	27.5-37.5	4/12/2003	0.0051J	0.0072J	--
0511	32-42	4/12/2003	0.0057J	0.0025J	--
0512	21-31	4/12/2003	0.0036J	<0.01	--
0513	12-22	4/12/2003	0.004J	0.0032J	--
0514	32.5-42.5	4/12/2003	0.0046J	0.011	--
0515	22.5-32.5	4/12/2003	<0.01	0.0018J	--
0516	12.5-22	4/12/2003	0.0033J	<0.01	--
0517	31.5-41.5	4/12/2003	0.0046J	0.0061J	--
0518	22.5-32.5	4/12/2003	<0.01	<0.01	--
0519	12.5-22.5	4/12/2003	0.0034J	0.0018J	--
0520	32.5-42.5	4/14/2003	<0.01	0.0087J	--
0521	20-30	4/14/2003	0.0039J	<0.01	--
0522	5-15	4/14/2003	0.038	0.0024J	--
0523	32.5-42.5	4/14/2003	<0.01	0.0067J	--
0524	20-30	4/14/2003	0.025	<0.01	--
0525	5-15	4/14/2003	0.12	<0.01	--
0526	19.5-29	4/12/2003	0.0077J	0.015	--
RW02	10-20	4/7/2003	0.081	--	--
RW03	9-24	4/7/2003	0.071	--	--
PIN21			**Perimeter Monitoring Wells**		
0500	7-17	4/9/2003	0.0068J	--	--
0501	20-28	4/9/2003	<0.01	--	--
0502	7-17	4/11/2003	0.0052J	--	--
0503	20-28	4/11/2003	<0.01	--	--
0504	7-17	4/11/2003	0.0057J	--	--
0505	20-28	4/11/2003	0.0035J	--	--
0512	20-29.5	4/11/2003	0.0034J	--	--

J = Estimated value, result is between the reporting limit and the method detection limit.
-- Not Measured

Table 9. COPC Concentrations at the Building 100 Area
(reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	1,1-DCE	Vinyl chloride	Total COPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**7**	**1**	
PIN06			**Old Drum Storage Site**						
0500	3-13	4/12/2002	0.13J	0.32J	<1	0.32J	<1	<1	ND
		7/16/2002	<1	0.74J	<1	0.74J	<1	<1	ND
		4/15/2003	<1	<1	<1	ND	<1	<1	ND
0501	3-13	4/12/2002	<1	<1	<1	ND	<1	<1	ND
		7/17/2002	<1	<1	<1	ND	<1	<1	ND
		4/15/2003	<1	<1	<1	ND	<1	<1	ND
PIN09			**Incinerator Site**						
0500	3-13	4/12/2002	<1	<1	<1	ND	<1	<1	ND
		7/16/2002	<1	<1	<1	ND	<1	0.23J	ND
		4/15/2003	<1	<1	<1	ND	<1	<1	ND
PIN10			**Incinerator Ditch**						
0500	3-13	4/12/2002	0.33J	0.61J	<1	0.61J	<1	<1	ND
		7/17/2002	0.33J	0.42J	<1	0.42J	<1	<1	ND
		4/15/2003	0.25J	1.9	<1	1.9	<1	<1	1.9
PIN12			**Industrial Drain Leaks Bldg 100**						
0508	3-13	4/17/2002	<1	<1	<1	ND	<1	<1	ND
		7/17/2002	<1	0.67J	<1	0.67J	<1	<1	ND
		4/15/2003	<2.5	<2.5	<2.5	ND	<2.5	<2.5	ND
0509	3-13	4/17/2002	<1	<1	<1	ND	<1	<1	ND
		7/17/2002	<1	6	<1	6	<1	3.5	9.5
		4/15/2003	<1	0.099J	<1	0.099J	<1	<1	ND
0510	3-13	4/11/2002	<1	<1	<1	ND	<1	<1	ND
		7/17/2002	<1	<1	<1	ND	<1	0.32J	ND
		4/15/2003	<2.5	<2.5	<2.5	ND	<2.5	<2.5	ND
0511	3-13	4/15/2002	<1	<1	<1	ND	<1	<1	ND
		7/13/2002	<1	<1	<1	ND	<1	<1	ND
		4/11/2003	<1	<1	<1	ND	<1	<1	ND
0512	3-13	4/13/2002	<1	<1	<1	ND	<1	<1	ND
		7/13/2002	<1	<1	<1	ND	<1	<1	ND
		4/12/2003	<1	<1	<1	ND	<1	<1	ND
0513	15-25	4/11/2002	<1	31	2.1	33.1	0.58J	23	56.1
		7/13/2002	<1	16	2	18	0.39J	38	56
		10/14/2002	0.27J	22	2.2	24.2	<1	48	72.2
		1/8/2003	<1	24	1.2	25.2	<1	46	71.2
		4/9/2003	<1	16	1.5	17.5	0.22J	37	54.5

Table 9 (continued). COPC Concentrations at the Building 100 Area (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	1,1-DCE	Vinyl chloride	Total COPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**7**	**1**	
0514	30-40	4/11/2002	<2.5	99	130	229	1.2J	97	326
		7/13/2002	<1	58	70	128	0.68J	100	228
		10/14/2002	0.15J	64	63	127	<1	120	247
		1/9/2003	<2.5	45	54	99	<2.5	72	171
		4/9/2003	<2.5	56	60	116	0.34J	98	214
0515	15-25	4/13/2002	<1	<1	<1	ND	<1	<1	ND
		7/13/2002	<1	<1	<1	ND	<1	<1	ND
		4/12/2003	<1	<1	<1	ND	<1	<1	ND
0516	30-40	4/13/2002	<1	<1	<1	ND	<1	<1	ND
		7/13/2002	<1	<1	<1	ND	<1	<1	ND
		4/12/2003	<1	<1	<1	ND	<1	<1	ND
0517	15-25	4/13/2002	<1	<1	<1	ND	<1	<1	ND
		7/13/2002	<1	<1	<1	ND	<1	<1	ND
		10/12/2002	<1	<1	<1	ND	<1	<1	ND
		4/12/2003	<1	<1	<1	ND	<1	<1	ND
0518	30-40	4/13/2002	<1	<1	<1	ND	<1	<1	ND
		7/13/2002	<1	<1	<1	ND	<1	0.56J	ND
		10/12/2002	<1	<1	<1	ND	<1	0.95J	ND
		4/12/2003	<1	<1	<1	ND	<1	0.84J	ND
0520	36-46	4/12/2002	<5	360	<5	360	1.2J	100	460
		7/16/2002	<2.5	200	<2.5	200	<2.5	78	278
		4/15/2003	<1	9.9	<1	9.9	<1	57	66.9
0521	19.5-29.5	4/12/2002	0.4J	0.82J	<1	0.82J	<1	<1	ND
		7/16/2002	1.2	3.6	0.22J	3.6	<1	1.4	6.2
		4/15/2003	0.77J	1.5	<1	1.5	<1	0.68J	1.5
0522	32-42	4/12/2002	<1	<1	<1	ND	<1	<1	ND
		7/17/2002	<1	<1	<1	ND	<1	<1	ND
		4/15/2003	<2.5	<2.5	<2.5	ND	<2.5	<2.5	ND
0523	18-28	4/12/2002	0.15J	1.1	<1	1.1	<1	0.49J	1.1
		7/17/2002	0.22J	1	<1	1	<1	0.42J	1
		10/10/2002	0.2J	1	<1	1	<1	0.31J	1
		4/15/2003	<1	0.6J	<1	0.6J	<1	<1	ND
0524	27-37	4/13/2002	<10	1,800	110	1,910	430	490	2,830
		7/13/2002	<100	4,700	52J	4,700	230	680	5,610
		10/12/2002	<10	360	4.8J	360	24	43	427
		1/11/2003	<250	8,200	120J	8,200	280	530	9,010
		4/12/2003	<100	4,900	23J	4,900	150	300	5,350

Table 9 (continued). COPC Concentrations at the Building 100 Area (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	1,1-DCE	Vinyl chloride	Total COPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**7**	**1**	
0525	12-22	4/13/2002	<1	2.2	<1	2.2	<1	<1	2.2
		7/13/2002	<1	2.5	<1	2.5	<1	0.25J	2.5
		10/12/2002	<1	2.6	<1	2.6	<1	0.34J	2.6
		1/11/2003	<1	2.4	<1	2.4	<1	<1	2.4
		4/12/2003	<1	3.4	<1	3.4	<1	<1	3.4
0526	19.5-29.5	4/13/2002	<1	14	4.8	18.8	<1	3.4	22.2
		7/13/2002	<1	6.8	4.4	11.2	<1	4	15.2
		10/12/2002	<1	3.5	2.1	5.6	<1	1.8	7.4
		1/9/2003	<1	3.1	1.7	4.8	<1	1.1	5.9
		4/9/2003	<1	8	3.6	11.6	<1	3.2	14.8
0527	118-137.6	4/15/2002	<1	<1	<1	ND	<1	<1	ND
		4/9/2003	<1	<1	<1	ND	<1	<1	ND
0528	121-141	4/15/2002	<1	<1	<1	ND	<1	<1	ND
	127-146.9	4/11/2003	<1	<1	<1	ND	<1	<1	ND
RW01	19-29	4/11/2002	9,000	7,200	<250	7,200	<250	400	16,600
		7/15/2002	8,100	4,100	40J	4,100	38J	930	13,130
		4/7/2003	7,200	3,500	45J	3,500	<250	900	11,600
RW02	25-35	4/11/2002	750	840	55	895	18	67	1,730
		7/15/2002	820	600	57	657	18J	66	1,543
		4/7/2003	660	720	47	767	18J	76	1,503
S29C	14-24	4/16/2002	<2.5	0.32J	3.6	3.6	<2.5	100	103.6
		7/12/2002	<1	<1	3.9	3.9	<1	6.9	10.8
		5/9/2003	<1	5.7	5.5	11.2	<1	34	45.2
S30B	5-15	4/16/2002	3,800	10,000	150J	10,000	<250	<250	13,800
		7/12/2002	23,000	22,000	1,000	23,000	<250	<250	46,000
		5/9/2003	1,900	27,000	880	27,880	140J	2,000	31,780
S31B	5-15	4/16/2002	0.27J	0.85J	<1	0.85J	<1	<1	ND
		7/12/2002	<1	0.83J	<1	0.83J	<1	<1	ND
		5/8/2003	<1	0.36J	<1	0.36J	<1	<1	ND
S32B	5.5-15.5	4/16/2002	<1	18	1	19	2.6	5	26.6
		7/12/2002	<1	15	1.8	16.8	5.2	7.7	29.7
		5/9/2003	<1	22	0.74J	22	0.65J	4.9	26.9
S33C	11-21	4/16/2002	1.8J	230	6.6	236.6	3.5J	520	756.6
		7/13/2002	<10	110	2.3J	110	<10	280	390
		5/9/2003	7.9J	980	68	1,048	6.4J	1,400	2,448
S35B	5-15	4/15/2002	47,000	110,000	7,800	117,800	<2,500	11,000	175,800
		7/12/2002	36,000	100,000	5,500	105,500	<2,500	6,600	148,100
		5/9/2003	49,000	110,000	11,000	121,000	<1,000	20,000	190,000

Table 9 (continued). COPC Concentrations at the Building 100 Area (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	1,1-DCE	Vinyl chloride	Total COPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**7**	**1**	
S36B	5-15	4/16/2002	<1	<1	<1	ND	<1	<1	ND
		7/13/2002	<1	<1	<1	ND	<1	<1	ND
		5/8/2003	<1	<1	<1	ND	<1	<1	ND
S37B	5-15	4/16/2002	<5	220	1.2J	220	<5	160	380
		7/12/2002	<10	230	<10	230	<10	45	275
		5/9/2003	57	720	14	734	<10	310	1,101
S54D	36-41	4/15/2002	9,900	43,000	<1,000	43,000	<1,000	<1,000	52,900
		7/12/2002	15,000	43,000	77J	43,000	190J	2,000	60,000
		5/12/2003	11,000	59,000	<1,000	59,000	370J	4,600	74,600
S55B	10-19.8	4/15/2002	<100	1,800	<100	1,800	<100	11,000	12,800
		7/11/2002	<250	1,800	<250	1,800	<250	8,300	10,100
		5/12/2003	<50	2,000	<50	2,000	<50	19,000	21,000
S55C	20.5-30.3	4/15/2002	<100	9,400	16J	9,400	<100	3,000	12,400
		7/11/2002	<100	1,600	<100	1,600	<100	53J	1,600
		5/12/2003	<100	8,300	18J	8,300	<100	1,900	10,200
S55D	31-40.8	5/12/2003	11J	2,800	<50	2,800	<50	590	3,390
S56B	10-19.8	4/15/2002	<1	<1	<1	ND	<1	<1	ND
		7/12/2002	<1	<1	<1	ND	<1	<1	ND
		5/12/2003	28	40	0.12J	40	0.76J	6.5	74.5
S56C	20.5-30.3	4/15/2002	<1	<1	<1	ND	<1	<1	ND
		7/12/2002	<1	<1	<1	ND	<1	<1	ND
		5/12/2003	38	64	0.26J	64	0.81J	7.3	109.3
S56D	31-40.8	4/15/2002	<1	<1	<1	ND	<1	<1	ND
		7/12/2002	<1	<1	<1	ND	<1	<1	ND
		5/12/2003	30	56	0.22J	56	1	12	99
S57B	10-19.8	4/15/2002	<1	<1	<1	ND	<1	<1	ND
		7/11/2002	<1	<1	<1	ND	<1	<1	ND
		5/12/2003	460	510	1.1J	510	20	100	1,090
S57C	20.5-30.3	4/15/2002	21,000	23,000	<1,000	23,000	370J	16,000	60,000
		7/11/2002	31,000	24,000	<1,000	24,000	670J	<1,000	55,000
		5/12/2003	30,000	34,000	86J	34,000	2,400	13,000	79,400
S57D	31.5-41.3	4/15/2002	7.6	240	1.1J	240	3.5J	580	827.6
		7/11/2002	5.4	190	0.82J	190	4.5	280	479.9
		5/12/2003	17	440	1.7J	440	9.1J	720	1,177
S59B	10-19.8	4/12/2002	<1	0.5J	<1	0.5J	<1	3.7	3.7
		7/11/2002	<1	0.45J	<1	0.45J	<1	<1	ND
		4/9/2003	0.99J	0.73J	<1	0.73J	<1	0.58J	ND
S59C	20.5-30.3	4/12/2002	<1	5.8	<1	5.8	<1	5.4	11.2
		7/11/2002	<1	9.3	<1	9.3	<1	1.2	10.5
		4/9/2003	<1	10	<1	10	<1	8	18

Table 9 (continued). COPC Concentrations at the Building 100 Area (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	1,1-DCE	Vinyl chloride	Total COPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**7**	**1**	
S59D	31-40.8	4/12/2002	<1	<1	<1	ND	<1	<1	ND
		7/11/2002	<1	<1	<1	ND	<1	<1	ND
		4/8/2003	<1	<1	<1	ND	<1	<1	ND
S60B	10-19.8	4/12/2002	<1	5.9	<1	5.9	0.63J	<1	5.9
		7/11/2002	<1	5.8	<1	5.8	0.65J	0.56J	5.8
		4/9/2003	<1	4.8	<1	4.8	1	1.2	7
S60C	20.5-30.3	4/12/2002	<1	<1	<1	ND	<1	<1	ND
		7/11/2002	<1	<1	<1	ND	<1	<1	ND
		4/9/2003	<1	<1	<1	ND	<1	<1	ND
S60D	31-40.8	4/12/2002	<1	<1	<1	ND	<1	<1	ND
		7/11/2002	<1	3.8	<1	3.8	0.23J	<1	3.8
		4/9/2003	<1	<1	<1	ND	<1	<1	ND
S67B	10-19.83	4/12/2002	<10	41	1.9J	41	<10	550	591
		7/15/2002	<10	49	5.5J	49	<10	540	589
		1/8/2003	<10	35	2.6J	35	<10	490	525
		4/9/2003	<10	47	4.5J	47	<10	450	497
S67C	20-29.83	4/12/2002	<10	440	64	504	1.4J	240	744
		7/15/2002	<10	600	110	710	5.5J	280	990
		1/8/2003	<10	570	110	680	4.1J	300	980
		4/9/2003	<10	720	130	850	4.4J	260	1,110
S67D	30-39.83	4/12/2002	<2.5	100	<2.5	100	<2.5	69	169
		7/15/2002	0.26J	69	28	97	0.82J	75	172
		1/8/2003	<2.5	130	27	157	1J	110	267
		4/9/2003	<2.5	160	35	195	1.4J	82	277
S68B	10-20	4/11/2002	<1	<1	<1	ND	<1	<1	ND
		7/16/2002	<1	0.12J	<1	0.12J	<1	<1	ND
		10/12/2002	<1	0.18J	<1	0.18J	<1	<1	ND
		1/14/2003	<1	<1	<1	ND	<1	<1	ND
		4/11/2003	<1	<1	<1	ND	<1	<1	ND
S68C	18-28	4/11/2002	<1	1.6	<1	1.6	<1	1.7	3.3
		7/16/2002	<1	1	<1	1	<1	1	2
		10/12/2002	<1	1.6	<1	1.6	<1	2.1	3.7
		1/14/2003	<1	4.8	<1	4.8	<1	4.4	9.2
		4/11/2003	<1	3	<1	3	<1	5.2	8.2
S68D	30-40	4/11/2002	<1	50	<1	50	<1	62	112
		7/16/2002	<1	49	0.27J	49	<1	42	91
		10/14/2002	<1	63	0.31J	63	<1	68	131
		1/14/2003	<1	40	<1	40	<1	30	70
		4/11/2003	<1	93	0.38J	93	<1	91	184

Table 9 (continued). COPC Concentrations at the Building 100 Area (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	1,1-DCE	Vinyl chloride	Total COPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**7**	**1**	
S69B	10-20	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/14/2002	<1	<1	<1	ND	<1	<1	ND
		10/14/2002	<1	0.28J	<1	0.28J	<1	<1	ND
		1/13/2003	<1	0.14J	<1	0.14J	<1	<1	ND
		4/10/2003	<1	0.18J	<1	0.18J	<1	<1	ND
S69C	20-30	4/10/2002	<1	1.1	<1	1.1	<1	<1	1.1
		7/14/2002	<1	<1	<1	ND	<1	<1	ND
		10/14/2002	<1	0.3J	0.2J	0.5J	<1	0.4J	ND
		1/13/2003	<1	0.2J	<1	0.2J	<1	0.64J	ND
		4/10/2003	<1	0.11J	<1	0.11J	<1	0.26J	ND
S69D	30-40	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/14/2002	<1	<1	<1	ND	<1	<1	ND
		10/14/2002	<1	0.65J	<1	0.65J	<1	<1	ND
		1/13/2003	<1	0.49J	<1	0.49J	<1	<1	ND
		4/10/2003	<1	0.41J	<1	0.41J	<1	<1	ND
S70B	10-20	4/10/2002	<1	30	0.36J	30	<1	16	46
		7/14/2002	<1	28	0.3J	28	<1	20	48
		10/15/2002	<1	32	0.68J	32	<1	31	63
		1/13/2003	<1	28	0.28J	28	<1	19	47
		4/10/2003	<1	29	0.24J	29	<1	31	60
S70C	20-30	4/10/2002	<1	26	5.4	31.4	<1	6	37.4
		7/14/2002	<1	22	6.4	28.4	<1	6.1	34.5
		10/15/2002	<1	25	11	36	0.96J	11	47
		1/13/2003	<1	29	9.5	38.5	0.66J	6.7	45.2
		4/10/2003	<1	29	8.8	37.8	0.52J	14	51.8
S70D	30-40	4/10/2002	<1	7	1.2	8.2	<1	1.2	9.4
		7/14/2002	<1	7.8	2.1	9.9	<1	1.1	11
		10/15/2002	<1	9.3	3.8	13.1	0.19J	1.9	15
		1/13/2003	<1	10	3.4	13.4	<1	1.7	15.1
		4/10/2003	<1	13	4	17	<1	3.2	20.2
S71B	10-20	4/11/2002	<1	<1	<1	ND	<1	<1	ND
		7/13/2002	<1	0.5J	<1	0.5J	<1	<1	ND
		10/15/2002	<1	2.4	1.2	3.6	<1	0.29J	3.6
		1/13/2003	<1	7	2.8	9.8	<1	1.2	11
		4/9/2003	<1	3.7	1.1	4.8	<1	0.53J	4.8
S71C	20-30	4/11/2002	<1	55	17	72	0.45J	28	100
		7/13/2002	<1	120	69	189	0.23J	42	231
		10/15/2002	<2.5	75	50	125	0.86J	65	190
		1/13/2003	<1	110	65	175	1.5	82	258.5
		4/9/2003	<1	100	53	153	1.1	94	248.1

Table 9 (continued). COPC Concentrations at the Building 100 Area (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	1,1-DCE	Vinyl chloride	Total COPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**7**	**1**	
S71D	30-40	4/11/2002	<1	0.93J	<1	0.93J	<1	<1	ND
		7/13/2002	<1	1.6	<1	1.6	<1	<1	1.6
		10/15/2002	<1	3	0.59J	3	<1	0.71J	3
		1/13/2003	<1	2.3	0.23J	2.3	<1	0.35J	2.3
		4/9/2003	<1	4.1	0.64J	4.1	<1	0.74J	4.1
S72B	10-20	4/9/2002	<1	<1	<1	ND	<1	<1	ND
		7/15/2002	<1	<1	<1	ND	<1	<1	ND
		10/11/2002	<1	<1	<1	ND	<1	<1	ND
		1/11/2003	<1	<1	<1	ND	<1	<1	ND
		4/10/2003	<1	<1	<1	ND	<1	<1	ND
S72C	20-30	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/15/2002	<1	0.15J	<1	0.15J	<1	<1	ND
		10/14/2002	<1	0.22J	<1	0.22J	<1	<1	ND
		1/11/2003	<1	46	0.48J	46	2.7	5.6	54.3
		4/10/2003	<1	0.2J	<1	0.2J	<1	<1	ND
S72D	30-40	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/15/2002	<1	<1	<1	ND	<1	<1	ND
		10/14/2002	<1	<1	<1	ND	<1	<1	ND
		1/11/2003	<1	1.9	<1	1.9	<1	1.7	3.6
		4/10/2003	<1	<1	<1	ND	<1	<1	ND
S73B	10-20	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/15/2002	<1	<1	<1	ND	<1	<1	ND
		10/14/2002	<1	<1	<1	ND	<1	<1	ND
		1/10/2003	<1	<1	<1	ND	<1	<1	ND
		4/9/2003	<1	<1	<1	ND	<1	<1	ND
S73C	20-30	4/10/2002	<1	46	18	64	<1	29	93
		7/15/2002	<1	43	18	61	0.83J	34	95
		10/14/2002	<1	37	18	55	0.63J	33	88
		1/9/2003	<1	61	32	93	0.69J	35	128
		4/9/2003	<1	32	14	46	0.23J	25	71
S73D	30-40	4/10/2002	<1	<1	<1	ND	<1	<1	ND
		7/15/2002	<1	0.6J	0.15J	0.75J	<1	0.24J	ND
		10/14/2002	<1	1.1	0.42J	1.1	<1	0.32J	1.1
		1/10/2003	<1	<1	<1	ND	<1	<1	ND
		4/9/2003	<1	1.1	0.18J	1.1	<1	0.33J	1.1
TE03	-	4/13/2002	<1	<1	<1	ND	<1	<1	ND
		7/13/2002	<1	0.14J	<1	0.14J	<1	5.6	5.6
		4/12/2003	<1	<1	<1	ND	<1	5.2	5.2

Table 9 (continued). COPC Concentrations at the Building 100 Area (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	TCE	cis-1,2-DCE	trans-1,2-DCE	Total 1,2-DCE[a]	1,1-DCE	Vinyl chloride	Total COPC[b]
FDEP MCL			**3**	**70**	**100**	**63**	**7**	**1**	
PIN21			**Perimeter Monitoring Wells**						
0500	7-17	4/9/2002	<1	<1	<1	ND	<1	<1	ND
		7/14/2002	<1	<1	<1	ND	<1	<1	ND
		4/9/2003	<1	<1	<1	ND	<1	<1	ND
0501	20-28	4/9/2002	<1	1.5	<1	1.5	<1	<1	1.5
		7/14/2002	<1	1.1	<1	1.1	<1	<1	1.1
		4/9/2003	<1	1.3	<1	1.3	<1	<1	1.3
0502	7-17	4/13/2002	<1	<1	<1	ND	<1	<1	ND
		7/15/2002	<1	<1	<1	ND	<1	<1	ND
		10/12/2002	<1	<1	<1	ND	<1	<1	ND
		1/10/2003	<1	<1	<1	ND	<1	<1	ND
		4/11/2003	<1	<1	<1	ND	<1	<1	ND
0503	20-28	4/13/2002	<1	<1	<1	ND	<1	<1	ND
		7/15/2002	0.13J	<1	<1	ND	<1	<1	ND
		10/12/2002	<1	<1	<1	ND	<1	<1	ND
		1/10/2003	<1	<1	<1	ND	<1	<1	ND
		4/11/2003	<1	<1	<1	ND	<1	<1	ND
0504	7-17	4/17/2002	<1	<1	<1	ND	<1	<1	ND
		7/15/2002	<1	<1	<1	ND	<1	<1	ND
		10/16/2002	<1	<1	<1	ND	<1	<1	ND
		1/14/2003	<1	<1	<1	ND	<1	<1	ND
		4/11/2003	<1	<1	<1	ND	<1	<1	ND
0505	20-28	4/17/2002	<1	<1	<1	ND	<1	<1	ND
		7/15/2002	<1	<1	<1	ND	<1	0.21J	ND
		10/16/2002	<1	<1	<1	ND	<1	<1	ND
		1/14/2003	<1	<1	<1	ND	<1	<1	ND
		4/11/2003	<1	<1	<1	ND	<1	<1	ND
0512	20-29.5	4/16/2002	<1	2.7	<1	2.7	<1	3.7	6.4
		7/15/2002	<1	1.3	<1	1.3	<1	1.6	2.9
		10/15/2002	4	6.1	0.2J	6.1	<1	2.7	12.8
		1/11/2003	<1	0.76J	<1	0.76J	<1	<1	ND
		4/11/2003	<1	0.82J	<1	0.82J	<1	1.9	1.9

[a]Total 1,2-DCE is the sum of cis-1,2-DCE and trans-1,2-DCE.
[b]Total COPC is the sum of the individual COPC concentrations. The cis-1,2-DCE and trans-1,2-DCE values are not part of the total COPC value because these values are included in the total 1,2-DCE value. "J" values are not included in the total COPC value.

ND = Not detected
J = Estimated value, result is between the reporting limit and the method detection limit.
B = Analyte also found in method blank.

Table 10. COPC Concentrations at the Wastewater Neutralization Area (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	Vinyl chloride	Arsenic	Total COPC[a]
FDEP MCL			**1**	**50**	
PIN18			**Wastewater Neutralization Area**		
0500	11-16	4/16/2002	<1	92	92
		7/16/2002	--	97	97
		10/15/2002	--	110	110
		1/13/2003	--	110	110
		4/14/2003	<1	110	110
0501	11-16	4/16/2002	<1	700	700
		7/16/2002	--	580	580
		10/10/2002	--	450	450
		1/13/2003	--	380	380
		4/14/2003	<1	300	300
0502	11-16	4/16/2002	<1	60	60
		7/16/2002	--	74	74
		10/10/2002	--	66	66
		1/13/2003	--	58	58
		4/14/2003	<1	53	53
0503	10-20	4/13/2002	<1	6.8J	ND
		10/11/2002		<10	ND
		4/12/2003	<1	4.2J	ND
0504	13-22	4/16/2002	<1	<10	ND
		10/12/2002	--	4.6J	ND
		10/14/2002	--	<10	ND
		4/14/2003	<1	5J	ND
0505	10.5-20.5	4/13/2002	<1	5.6J	ND
		10/15/2002	--	<10	ND
		4/12/2003	<1	6.8J	ND
0506	12-22	4/13/2002	<1	4.1J	ND
		10/12/2002	--	<10	ND
		4/12/2003	<1	3.9J	ND
0507	27-37	4/13/2002	<1	<10	ND
		10/11/2002	--	<10	ND
		4/12/2003	<1	5.5J	ND
0508	31-41	4/16/2002	<1	<10	ND
		10/10/2002	--	<10	ND
		4/14/2003	<1	5J	ND
0509	27.5-37.5	4/13/2002	<1	<10	ND
		10/12/2002	--	<10	ND
		4/12/2003	<1	5.5J	ND
0510	27.5-37.5	4/13/2002	<1	3.7J	ND
		10/12/2002	--	3.8J	ND
		4/12/2003	<1	5.1J	ND
0511	32-42	4/16/2002	<1	<10	ND
		4/12/2003	<1	5.7J	ND

Table 10 (continued). COPC Concentrations at the Wastewater Neutralization Area (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	Vinyl chloride	Arsenic	Total COPC[a]
FDEP MCL			**1**	**50**	
0512	21-31	4/16/2002	<1	<10	ND
		4/12/2003	<1	3.6J	ND
0513	12-22	4/16/2002	<1	<10	ND
		4/12/2003	<1	4J	ND
0514	32.5-42.5	4/13/2002	<1	4.7J	ND
		4/12/2003	<1	4.6J	ND
0515	22.5-32.5	4/15/2002	<1	<10	ND
		4/12/2003	<1	<10	ND
0516	12.5-22	4/15/2002	<1	4.2J	ND
		4/12/2003	<1	3.3J	ND
0517	31.5-41.5	4/13/2002	<1	<10	ND
		4/12/2003	<1	4.6J	ND
0518	22.5-32.5	4/13/2002	<1	3.8J	ND
		4/12/2003	<1	<10	ND
0519	12.5-22.5	4/13/2002	6.7	4.2J	6.7
		4/12/2003	1	3.4J	1
0520	32.5-42.5	4/15/2002	<1	<10	ND
		4/14/2003	<1	<10	ND
0521	20-30	4/15/2002	<1	4.6J	ND
		7/16/2002	--	<10	ND
		10/10/2002	--	<10	ND
		1/13/2003	--	14	14
		4/14/2003	<1	3.9J	ND
0522	5-15	4/15/2002	<1	74	74
		7/16/2002	--	37	37
		10/10/2002	--	23	23
		1/13/2003	--	16	16
		4/14/2003	<1	38	38
0523	32.5-42.5	4/15/2002	<1	<10	ND
		7/16/2002	--	<10	ND
		10/10/2002	--	<10	ND
		1/13/2003	--	<10	ND
		4/14/2003	5.6	<10	5.6
0524	20-30	4/15/2002	<1	22	22
		7/16/2002	--	20	20
		10/10/2002	--	22	22
		1/13/2003	--	130	130
		4/14/2003	<1	25	25
0525	5-15	4/16/2002	<1	34	34
		7/16/2002	--	29	29
		10/10/2002	--	75	75
		1/13/2003	--	65	65
		4/14/2003	<1	120	120

Table 10 (continued). COPC Concentrations at the Wastewater Neutralization Area (reported in micrograms per liter)

Location	Screen Depth (ft)	Date Sampled	Vinyl chloride	Arsenic	Total COPC[a]
FDEP MCL			**1**	**50**	
0526	19.5-29	4/16/2002	<1	<10	ND
		4/12/2003	<1	7.7J	ND
RW02	10-20	4/16/2002	<1	78	78
		7/15/2002	<1	98	98
		1/13/2003	<1	82	82
		4/7/2003	<1	81	81
RW03	9-24	4/15/2002	<1	49	49
		7/15/2002	<1	57	57
		1/13/2003	<1	61	61
		4/7/2003	<1	71	71

[a]Total COPC is the sum of the individual COPC concentrations. "J" values are not included in the total COPC value.

ND = Not detected
-- = Not measured
J = Estimated value, result is between the reporting limit and the method detection limit.
B = Analyte also found in method blank.

Table 11. Relative Percent Difference (RPD) for Duplicate Samples

Sample ID	Duplicate ID	Case Number	Constituent	S[a]	D[b]	RPD Value	5 times DL[c]	Fail[d]
PIN12–0522	PIN12–0594	B351422	Non-Detect					
PIN12–S35B	PIN12–0581	B351730	1,1-Dichloroethene	500	480	4.1	5,000	
			1,2-Dichloropropane	250	500	66.7	5,000	
			Arsenic	0.014	0.014	0.0	0.05	
			Chlorodibromomethane	500	150	107.7	5,000	
			cis-1,2-Dichloroethene	110,000	89,000	21.1	5,000	
			m,p-Xylene	500	360	32.6	5,000	
			o-Xylene	500	400	22.2	5,000	
			Propane, 2-methoxy-2-methyl-	15,000	5,000	100.0	50,000	
			trans-1,2-Dichloroethene	11,000	10,000	9.5	5,000	
			Trichloroethene	49,000	31,000	45.0	5,000	Fail
			Vinyl chloride	20,000	15,000	28.6	5,000	
PIN12–S36B	PIN12–0582	B351730	Arsenic	0.0066	0.0091	31.8	0.05	
PIN12–S60B	PIN12–0583	B351360A	1,1-Dichloroethane	6.4	7	9.0	5	
			1,1-Dichloroethene	1	0.82	19.8	5	
			Benzene	0.22	0.16	31.6	5	
			cis-1,2-Dichloroethene	4.8	4.5	6.5	5	
			o-Xylene	0.16	0.5	103.0	5	
			Propane, 2-methoxy-2-methyl-	1.6	0.79	67.8	50	
			Toluene	0.15	0.14	6.9	5	
			Vinyl chloride	1.2	1.2	0.0	5	
PIN12–S70C	PIN12–0584	B351358	1,1-Dichloroethane	6.9	6.9	0.0	5	
			1,1-Dichloroethene	0.52	0.56	7.4	5	
			Arsenic	0.005	0.0032	43.9	0.05	
			cis-1,2-Dichloroethene	29	30	3.4	5	
			Methylene chloride	0.37	0.3	20.9	25	
			trans-1,2-Dichloroethene	8.8	9.1	3.4	5	
			Vinyl chloride	14	15	6.9	5	
PIN12–TE03	PIN12–0585	B351377	Arsenic	0.005	0.0089	56.1	0.05	
			cis-1,2-Dichloroethene	0.5	0.16	103.0	5	
			Vinyl chloride	5.2	5	3.9	5	
PIN15–0565	PIN15–0614	B351446	Non-Detect					

Table 11 (continued). Relative Percent Difference (RPD) for Duplicate Samples

Sample ID	Duplicate ID	Case Number	Constituent	S[a]	D[b]	RPD Value	5 times DL[c]	Fail[d]
PIN15–M37D	PIN15–0580	B351420	Arsenic	0.005	0.0062	21.4	0.05	
			Benzene	25	77	102.0	125	
			cis-1,2-Dichloroethene	4,700	3	199.7	125	Fail
			Methylene chloride	67	20	108.0	625	
			o-Xylene	25	3.1	155.9	125	
			Toluene	25	30	18.2	125	
			Trichloroethene	680	12.5	192.8	125	Fail
			Vinyl chloride	140	1,200	158.2	125	Fail
PIN18–0517	PIN18–0650	B351377/ B351379	Arsenic	0.0046	0.0049	6.3	0.05	
			Chromium	0.0061	0.0073	17.9	0.05	
			Methylene chloride	2.5	0.87	96.7	25	
			Propane, 2-methoxy-2-methyl-	5	0.67	152.7	50	
PIN18–0518	PIN18–0651	B351379	Arsenic	0.005	0.0037	29.9	0.05	
			Chromium	0.005	0.0018	94.1	0.05	
			Methylene chloride	1.3	0.39	107.7	25	

[a]S = Original sample (N001), VOC concentrations in µg/L and metals in mg/L.
[b]D = Duplicate sample (N002), VOC concentrations in µg/L and metals in mg/L.
[c]DL = Detected limit.
[d]Fail is an RPD greater than ±30% and original or duplicate result more than 5 times the detection limit.
ND = Not detected

Table 12. Summary of Analytical Results for Ground Water Samples Collected at the Northeast Site Treatment System
(*reported in micrograms per liter unless otherwise noted)*

Location[a]	Date Sampled	TCE	cis-1,2-DCE	Total 1,2-DCE[b]	Vinyl chloride	Methylene chloride	Benzene	Toluene	Total COPC[c]	$CaCO_3$ mg/L	Fe mg/L
PIN15		**Northeast Site**									
INF1	4/7/2003	1,700	3,400	3,400	980	4,000	<250	640	10,720	510	5
	4/22/2003	1,400	3,700	3,700	960	2,900	<100	410	9,370	490	5.1
	5/5/2003	1,300	3,300	3,300	780	2,300B	7.2J	380	8,060	480	5
	5/19/2003	1,600	5,400	5,400	1,200	3,800	13J	490	12,490	480	4.3
	6/3/2003	1,200	4,900	4,900	<250	3,600	<250	590	10,290	480	4.9
EFF1	4/7/2003	<1	<1	ND	<1	<5	<1	<1	ND	500	2.4
	4/22/2003	<1	0.17J	0.17J	<1	0.5J	<1	<1	ND	500	4.3
	5/5/2003	<1	<1	ND	<1	0.44JB	<1	<1	ND	480	4.3
	5/19/2003	<1	<1	ND	<1	<5	<1	<1	ND	490	3.8
	6/3/2003	<1	<1	ND	<1	<5	<1	<1	ND	480	4.2

[a]INF1 is the system influent and EFF1 is the system effluent.
[b]Total 1,2-DCE is the sum of cis-1,2-DCE and trans-1,2-DCE.
[c]Total COPC is the sum of the individual COPC concentrations. The cis-1,2-DCE value is not part of the Total COPC value because this value is included in the Total 1,2-DCE value. "J" values are not included in the Total COPC value.
J = Estimated value, result is between the reporting limit and the method detection limit.
B = Analyte also found in method blank.
ND = Not detected.

Table 13. Historical Summary of Ground Water Recovery at the Northeast Site and Building 100

Report Date	Quarterly (gallons)	Total To Date (gallons)
April–June 1997	356,886	356,886
July–September 1997	1,899,871	2,256,757
October–December 1997	2,265,460	4,522,217
January–March 1998	2,358,081	6,880,298
April–June 1998	1,693,697	8,573,995
July–September 1998	0	8,573,995
October–December 1998	0	8,573,995
January–March 1999	848,912	9,422,907
April–June 1999	1,985,705	11,408,612
July–September 1999	2,158,568	13,567,180
October–December 1999	2,285,471	15,852,651
January–March 2000	1,670,059	17,522,710
April–June 2000	2,031,821	19,554,531
July–September 2000	2,728,441	22,282,972
October–December 2000	2,416,705	24,699,677
January–March 2001	2,977,868	27,677,545
April–June 2001	2,452,063	30,129,608
July–September 2001	2,262,233	32,391,841
October–December 2001	2,374,065	34,765,906
January–March 2002	2,449,505	37,215,411
April–June 2002	2,119,164	39,334,575
July–September 2002	2,211,860	41,546,435
October−December 2002	1,830,987	43,377,422
January−March 2003	2,183,650	45,561,072
April−June 2003	2,216,297	47,777,369

Table 14. Estimated Mass of VOCs Recovered from the Northeast Site and Building 100 Recovery Wells During April, May, and June 2003

Month	Volume Treated (gallons)	Concentration[a]						
		cis-1,2-DCE (µg/L)	trans-1,2-DCE (µg/L)	Toluene (µg/L)	TCE (µg/L)	Methylene Chloride (µg/L)	Vinyl Chloride (µg/L)	Total VOCs (µg/L)
April 2003	37,988	3550	71	525	1550	3450	970	10116
May 2003	25,470	4350	16.5	435	1450	3050	990	10292
June 2003	52,839	4700	75	545	1400	3350	502.5	10572

Month	Volume Treated (gallons)	Recovery[b]						
		cis-1,2-DCE (lbs)	trans-1,2-DCE (lbs)	Toluene (lbs)	TCE (lbs)	Methylene Chloride (lbs)	Vinyl Chloride (lbs)	Total VOCs (lbs)
April 2003	37,988	1.1	0.0	0.2	0.5	1.1	0.3	3.2
May 2003	25,470	0.9	0.0	0.1	0.3	0.7	0.2	2.2
June 2003	52,839	2.1	0.0	0.2	0.6	1.5	0.2	4.7

[a]These concentrations represent the average of weekly sampling results.
[b]Includes "J" (estimated) values. For any detection of "<", which indicates the laboratory could not detect that analyte, 50 percent of the "<" value was used for the calculation of recovery.

Appendix A

Laboratory Reports—April 2003 Quarterly Results

Appendix B

Laboratory Reports for Northeast Site Treatment System—April to June 2003

Appendix C

Laboratory Reports for WWNA—April to June 2003